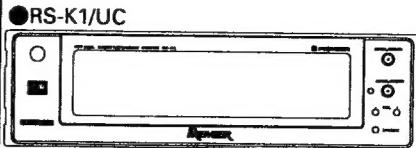


# Service Manual



ORDER NO.  
**CRT1533**

OPTICAL DIGITAL REFERENCE SYSTEM  
SYSTEM CONTROL TUNER/DECK

**RS-K1** **UC, EW, ES**

**NOTE:**

- See the separate manual CX-156(CRT-468) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- This device employs an inverter as the power supply for EL. The inverter has an output voltage reach approximately 200 volts(AC). Utmost care should be used not to suffer from a possible electric shock, accordingly.
- In the circuitry of this model, the portions to which approximately 200V(AC) is applied are denoted by pink color.
- The cassette mechanism employed in this model is one of X-0RS series.

## CONTENTS

1. SPECIFICATIONS .....	2
2. DISASSEMBLY .....	3
3. ADJUSTMENT .....	6
4. ERROR NUMBERS AND NEW TEST MODE .....	11
5. BLOCK DIAGRAM .....	31
6. CIRCUIT DIAGRAM AND P.C.BOARDS PATTERN .....	36
7. EXPLODED VIEW(1) .....	83
8. CASSETTE MECHANISM MODULE EXPLODED VIEW .....	87
9. EXPLODED VIEW(2) .....	90
10. FREE SPACE REMOTE CONTROL EXPLODED VIEW .....	92
11. PACKING METHOD .....	95
12. ELECTRICAL PARTS LIST .....	99
13. CIRCUIT DESCRIPTION .....	106
14. OPERATION AND CONNECTION .....	108

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## SAFETY INFORMATION(UC MODEL)

### CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## 1. SPECIFICATIONS

### General

Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)  
 Grounding system ..... Negative type  
 Max. current consumption ..... 1 A  
 Fuse ..... 4 A  
 Dimensions  
     (chassis) ..... 178 (W) x 50 (H) x 150 (D) mm  
     (front face) ..... 188 (W) x 58 (H) x 18 (D) mm  
 Weight (main unit) ..... 1.8 kg  
     (power source unit) ..... 0.3 kg  
     (SYSTEM COMMUNICATOR) ..... 0.1 kg  
 Signal format  
     (Sampling frequency) ..... 44.1 kHz  
     (Number of quantization bits) ..... 18 bit linear  
 Digital output ..... Optical output

### Tape player

Tape ..... Compact cassette tape (C-30 — C-90)  
 Tape speed ..... 4.76cm/sec. (+0.14cm/sec., -0.05cm/sec.)  
 Fast forward/rewind time ..... Approx. 100 sec. for C-60  
 Wow & flutter ..... 0.05% (WRMS)  
 Frequency response ..... Metal: 20 — 20,000 Hz (+3, -0 dB)  
 Stereo separation ..... 50 dB  
 Signal-to-noise ratio  
     Metal: Dolby C NR IN: 73 dB (IEC-A network)  
     Dolby B NR IN: 67 dB (IEC-A network)  
     Dolby NR OUT: 61 dB (IEC-A network)

### FM tuner

Frequency range (UC, ES) ..... 87.9 — 107.9 MHz  
 Frequency range (EW, ES) ..... 87.5 — 108 MHz  
 Usable sensitivity ..... 8 dBf (0.7  $\mu$ V/75  $\Omega$ , mono)  
 50 dB quieting  
     sensitivity ..... 13 dBf (1.2  $\mu$ V/75  $\Omega$ , mono)  
 Signal-to-noise ratio ..... 70 dB (IEC-A network)  
 Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)  
 Frequency response ..... 30 — 15,000 Hz ( $\pm$  3 dB)  
 Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

### MW tuner

Frequency range (UC, ES) ..... 530 — 1,710 kHz  
 Frequency range (EW, ES) ..... 531 — 1,602 kHz  
 Usable sensitivity ..... 18  $\mu$ V (25 dB) (S/N: 20 dB)  
 Selectivity ..... 50 dB ( $\pm$  9 kHz)

### LW tuner (EW)

Frequency range ..... 153 — 281 kHz  
 Usable sensitivity ..... 30  $\mu$ V (30 dB) (S/N: 20 dB)  
 Selectivity ..... 50 dB ( $\pm$  9 kHz)

### AUX (External Input)

Frequency response ..... 10 — 20,000 Hz (+0, -1 dB)  
 Distortion ..... 0.005% (at 1 kHz, 1 V, 20 kHz, L.P.F.)  
 Signal-to-noise ratio ..... 90 dB (at 1 kHz, 1 V, 20 kHz, L.P.F.)  
 Separation ..... 85 dB (at 1 kHz, 1 V, 20 kHz, L.P.F.)

## 2. DISASSEMBLY

### ● Removing the Case

1. Remove the two screws A and, then remove the two holders.
2. Remove the four screws B and, then remove the case.

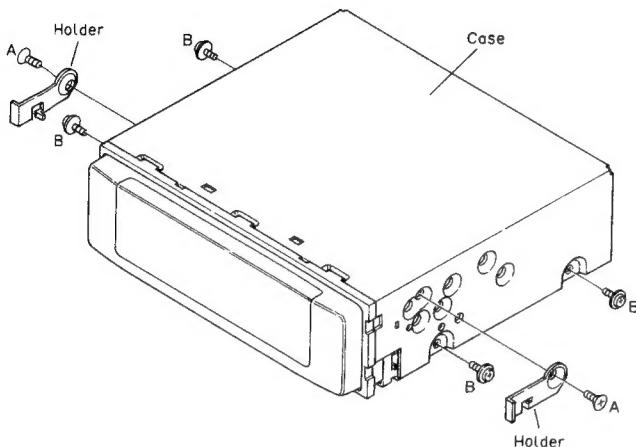


Fig.1

### ● Removing the Grille Panel Assy

1. Disconnect the three connectors.
2. Remove the two screws.
3. Disconnect the two stoppers indicated by arrows.
4. Remove the grille panel assy.

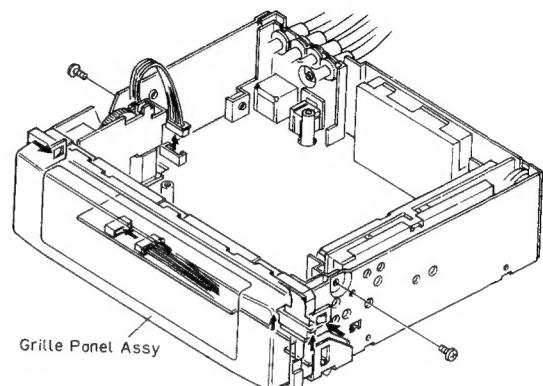


Fig.3

### ● Removing the Cassette Mechanism Module

1. Remove the four screws.
2. Disconnect the connector of deck unit.
3. Remove the cassette mechanism module.

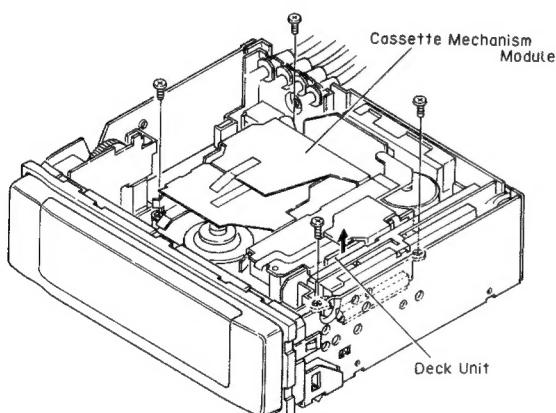


Fig.2

### ● Removing the Chassis Unit

1. Remove the screw C and three screws D.
2. Remove the solder.
3. Unbend the tabs at three locations indicated by arrows.
4. Remove the chassis unit.

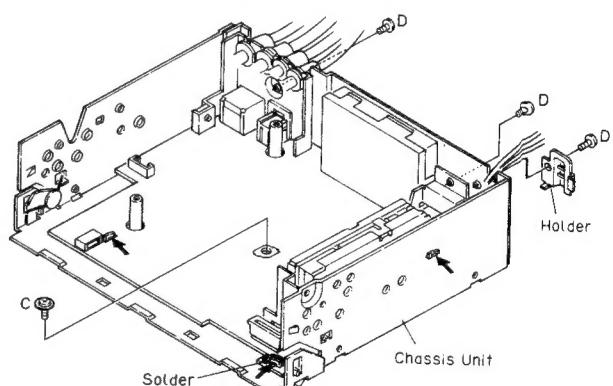


Fig.4

### ●Removing the Display Unit

1. While holding the tab of gear unit at locations indicated by black arrow.(Fig.5)
2. Press the display unit at locations indicated by white arrows.(Fig.5)
3. While holding down the lock button ,pull the display unit toward you.(Fig.6)

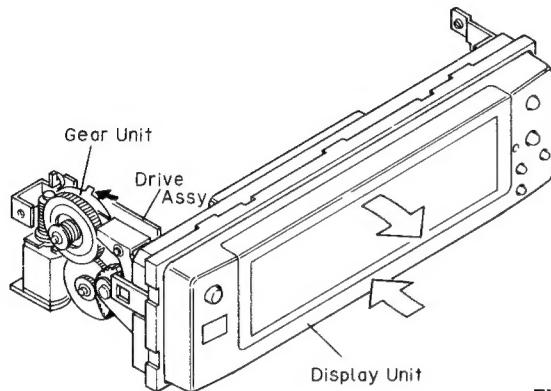


Fig.5

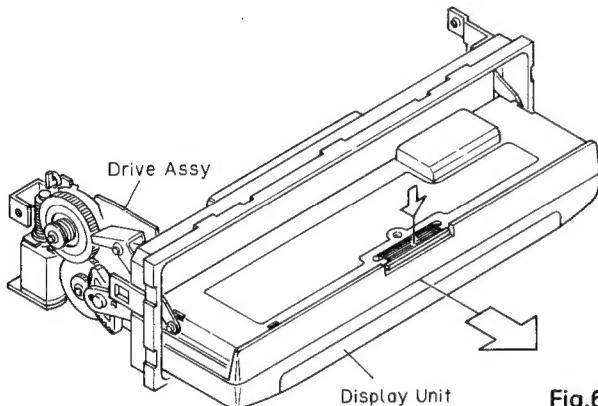


Fig.6

### ●Removing the Cover Unit

1. Remove the four screws.
2. Disconnect the four stoppers indicated by arrows.
3. Remove the cover unit.

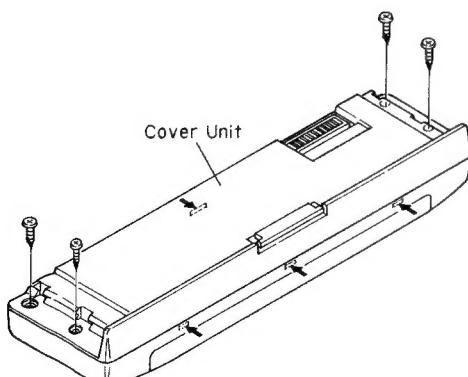


Fig.7

### ●Removing the Control P.C. Board

1. Disconnect the two connectors.
2. Remove the four screws.
3. Remove the solder, and then remove the control P.C.board.

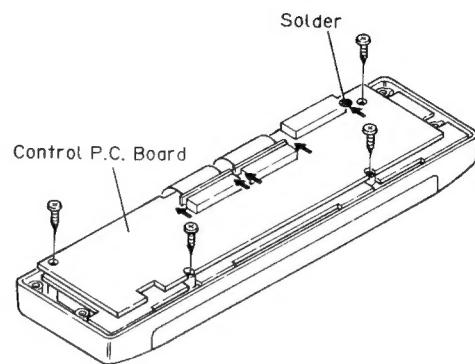


Fig.8

### ●Removing the Drive P.C. Board

1. Remove the three screws.
2. Remove the drive P.C.board.

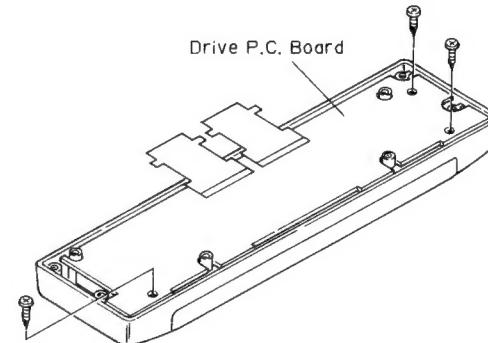


Fig.9

### ●Removing the EL

1. Remove the solder.
2. Unbend the tabs at six locations indicated by arrows.
3. Remove the holder.
4. Remove the EL.

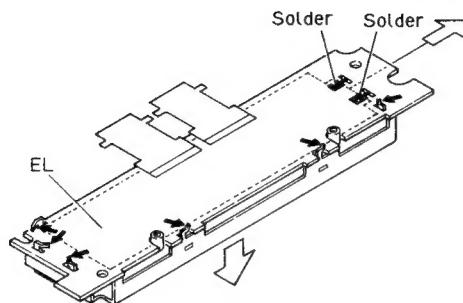


Fig.10

### ●Removing the Lower Case

1. Remove the battery cover, and then remove the batteries.
2. Remove the door unit.
3. Remove the two screws E and four screws F.
4. Disconnect the four stoppers indicated by arrows.
5. Remove the lower case.

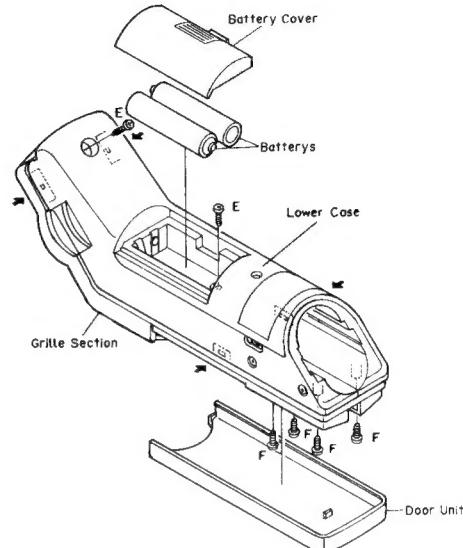


Fig.12

### ●Removing the Holder Unit

1. Remove the three washers.
2. Remove the screw, and then remove the holder unit.

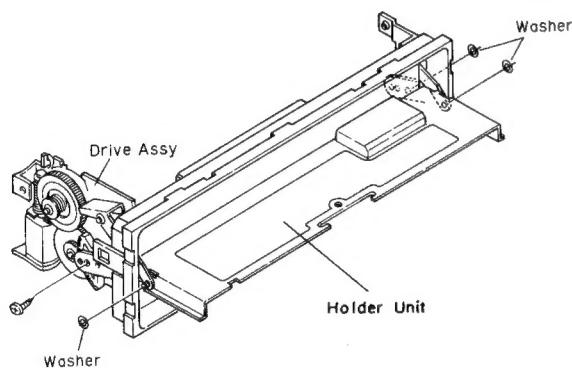


Fig.11

### ●Removing the Switch P.C.Board(A) and Main P.C.Board

1. Remove the four screws.
2. Disconnect the two connectors.
3. Remove the switch P.C.board(A) and main P.C.board.

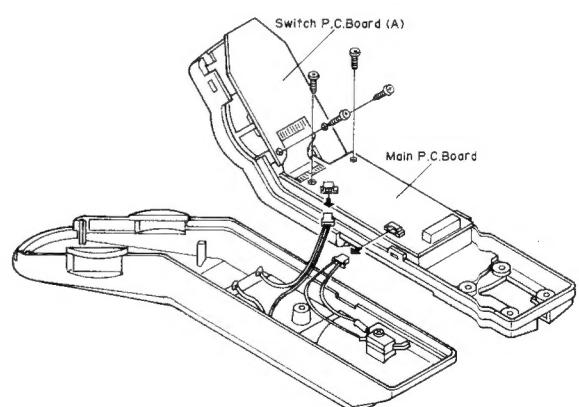


Fig.13

### 3. ADJUSTMENT

#### 3.1 TEST MODE

Test mode is mainly used adjustment of ODR system CD multi player RS-M1.

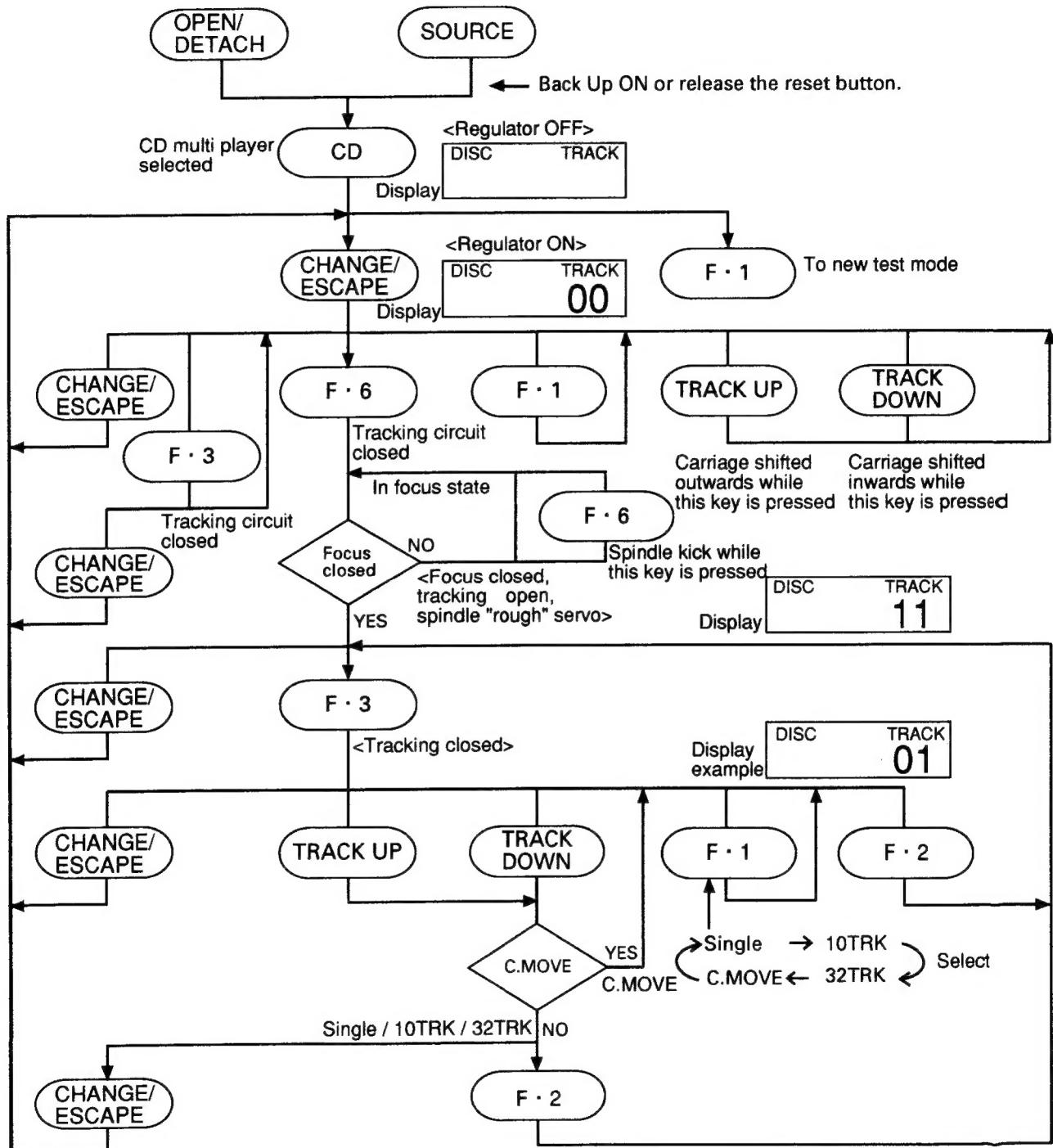
- Switching to test mode  
While pressing the OPEN/DETACH, SOURCE keys together, switch the back up ON or release the reset button.
- Canceling test mode  
Press the CD multi-player reset button, and then the RS-K1 reset button. Or, switch the CD multi-player and RS-K1 back up OFF.

##### a) CD multi-player,

Key of Free Space Remote Control	Function
CHANGE/ESCAPE	Regulator ON/OFF
TRACK UP	FWD kick
TRACK DOWN	REV kick
F·3	Tracking close
F·2	Tracking open
F·6	Focus close
F·4	Focus open
F·5	Jump-Off
F·1	1/10/32 jump/carriage move switching

- SINGLE/10TRK/32TRK will continue to operate even after the key is released. Tracking closed the moment C-MOVE is released.

## ●Flow Chart



## 3.2 AUDIO/TUNER SECTION

## NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

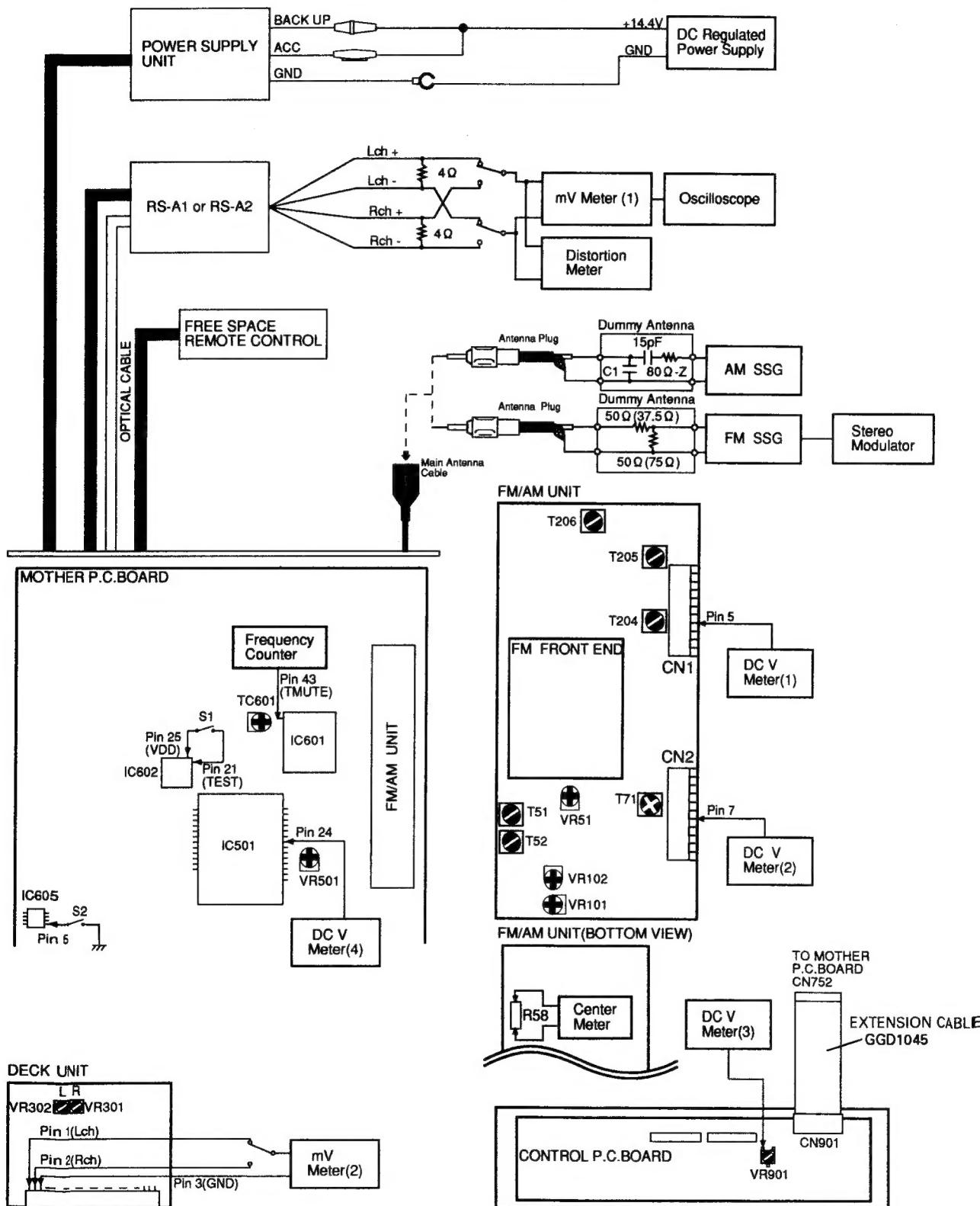


Fig. 14

**AM ADJUSTMENT(EW,ES)**

	No.	AM SSG(400Hz,30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dB $\mu$ V)			
TUN Volt	1			1,629		DC V Meter(1) : Less than 6.5V
IF	1	999	15	999	T204,T205, T206	mV Meter(1) : Maximum

**AM ADJUSTMENT(UC,ES)**

	No.	AM SSG(400Hz,30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dB $\mu$ V)			
TUN Volt	1			1,710		DC V Meter(1) : Less than 6.5V
IF	1	1,000	15	1,000	T204,T205, T206	mV Meter(1) : Maximum

**FM ADJUSTMENT(EW)**

Modulation M1:MONO MOD., 400Hz 30%(22.5kHz Dev.)  
 M2:MONO MOD., 400Hz 100%(75kHz Dev.)  
 S1:STEREO MOD., 1kHz, L or R=30%, Pilot=10%(20.25kHz+7.5kHz Dev.)  
 S2:STEREO MOD., 1kHz, L or R=90%, Pilot=10%(67.5kHz+7.5kHz Dev.)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
IF	1	98.0925- 98.0975 M2	65	98.1	T51	Center Meter:0
Distortion	1	98.1 M2	65	98.1	T52	Distortion Meter : Minimum
IFT	1	98.1 S2	65	98.1	T71	Distortion Meter : Minimum
Max. Mute	1	98.1 M1	65	98.1		mV Meter(1) : A (AUTO ON)
	2	98.1 M1	$-\infty$	98.1	VR102	mV Meter(1) : A-19dB
ARC	1	98.1 S1	39	98.1	VR101	mV Meter(1) : Separation 5dB
SD	1	98.1 M1	23	98.1	VR51	DC V Meter(2) : Approx. 5V (SEEK:ON)

**FM ADJUSTMENT(UC,ES)**

Modulation M1:MONO MOD., 400Hz 30%(22.5kHz Dev.)  
 M2:MONO MOD., 400Hz 100%(75kHz Dev.)  
 S1:STEREO MOD., 1kHz, L or R=30%, Pilot=10%(20.25kHz+7.5kHz Dev.)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
IF	1	98.0925- 98.0975 M2	65	98.1	T51	Center Meter : 0
Distortion	1	98.1 M2	65	98.1	T52	Distortion Meter : Minimum
IFT	1	98.1 M2	13	98.1	T71	Oscilloscope : Optimum Symmetry
Max. Mute	1	98.1 M1	65	98.1		mV Meter(1) : A (AUTO ON)
	2	98.1 M1	$-\infty$	98.1	VR102	mV Meter(1) : A-19dB
ARC	1	98.1 S1	39	98.1	VR101	mV Meter(1) : Separation 5dB
SD	1	98.1 M1	23	98.1	VR51	DC V Meter(2) : Approx. 5V (SEEK:ON)

**RDS SL ADJUSTMENT(EW)**

No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
	Frequency(MHz)	Level(dBf)			
1	106.1 M2	52	106.1	VR501	mV Meter(4) : 2.3V±0.05V

**DOLBY NR ADJUSTMENT**

No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR302(Lch),VR301(Rch)	mV Meter(2) : -8.24dBs-0.5dB +1.5dB (DOLBY NR Switch : OFF)

**SYSTEM CLOCK ADJUSTMENT**

No.	Adjustment Point	Adjustment Method (Switch Position)
1	Frequency Counter : 1.048576MHz±2Hz	TC601 (S1,S2 : ON)

**LCD CONTRAST ADJUSTMENT**

No.	Adjustment Point	Adjustment Method (Switch Position)
1	VR901	Best contrast

**NOTE:**

LCD contrast adjustment can be made by controlling the voltage with the DC V meter (3). However, as the voltage varies with temperature, rough adjustment should be made with referring to typical voltages shown in the table below, and finally the contrast should be adjusted to the optimum by visual sense.

**Contrast Adjustment Voltage (Example)**

Temperature(°C)	DC V Meter(3)
0	-11.79V
10	-11.49V
25	-11.36V

#### 4. ERROR NUMBERS AND NEW TEST MODE

### ● Indicating An Error Number

If the CD should fail to operate in CD multi player or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.

This is aimed at assisting an analysis or a repair.

### **(1) Basic Means of Display**

## (2) Number of Error Codes

100 codes, ranging from 00 thought 99.

### (3) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Unmovable to and from the inner circumference →Home switch failed and/or carriage improper moved
11	ELECTRIC	Focus failure	Focus failed →Disk scarred or stained on the back or vibrating hard
12	ELECTRIC	SETUP failure	Spindle failed to lock or subcode extraordinary →Spindle defective, disk other than audio and ROM
14	ELECTRIC	Blank Disk	Unrecorded CD-R The disc has been inserted upside down
30	ELECTRIC	Search time out	Target address failed to reach →Carriage/tracking improperly and/or disk scarred
A0	SYSTEM/ MECHANISM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal
50	MECHANISM	An error upon ejection	MAG SW release time has time out Elevation time out when eject
60	MECHANISM	An error while putting in and out the tray	Tray in/out time has time out Tray is caught when put in
70	MECHANISM	An error upon elevation	Elevation time has time out
80	MECHANISM	An error with an empty magazine inserted	No disk is available

#### ● New Test Mode(aging operation and setup analysis)

The CD multi player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disk number)

## (1) How to Put in the NEW TEST Mode

See the test mode flow chart Page 7.

## (2) Relations of keys between TEST and NEW TEST Modes

IP-BUS Commands	Keys	Test Mode		New Test Mode	
		Regulator OFF	Regulator ON	PLAY in progress	Error, Protection
15 00	CHANGE/ESCAPE	Regulator ON	Regulator OFF	—	Cause of error selected
15 01	TRACK UP	—	FWD-KICK	TRACK UP/FF	—
15 02	TRACK DOWN	—	REV-KICK	TRACK DOWN /REV	—
15 03	F·3	—	TRACKING CLOSE	—	—
15 04	F·2	—	TRACKING OPEN	REPEAT MODE	—
15 05	F·6	—	FOCUS CLOSE	—	—
15 06	F·4 —	—	FOCUS OPEN	RANDOM	—
15 07	F·5 —	—	JUMP OFF	—	—
15 08	F·1	To New Test Mode	Jump-Mode Selected	AUTO/MANU	—

Operations, such as EJECT, CD ON/OFF, etc. are to be performed normally

## (3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause/Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus Scar,
41	ELECTRIC	PLAY	LOCK=L 150ms	Spindle unlock Stain, Vibration,
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Subcode fails to read Servo defect, etc...
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated

## (4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving on the internal circumference	10-second time out
03	Carriage moving on the external circumference	10-second time out
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closing	Failure to focus closing
14	Spindle kicked and focus checked	Out of focus
15	Tracking closed and focus checked	Out of focus
17	Carriage closed and focus checked	Out of focus
18	Lock waiting Subcode waiting	Failure to lock, subcode failed to read Out of focus
19	End	None

## ●ICs

## ●Pin Functions (PD4448A)

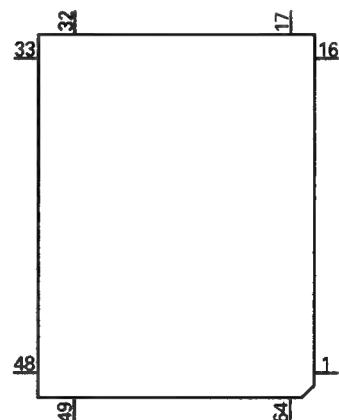
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1-25	NC			Not used
26	VSS			GND
27	SW1	I		Wireless/Wired select input
28	KINH	O	C	Key input inhibit output
29	KDT	O	C	Key data wired output
30,31	NC			Not used
32-35	KD0-KD3	I		Key data input
36-42	KST0-6	O	N	Key strobe output
43,44	NC			Not used
45	REMOUT	O	C	Remote control output
46	VDD			Power supply
47	XIN	I		Crystal oscillating element connection pin
48	XOUT	O		Crystal oscillating element connection pin
49	RESET	I		Reset input
50	WDOUT	O	N	Watch dog timer output
51-57	NC			Not used
58	VSS			GND
59-64	NC			Not used

Output Format	Meaning
C	CMOS
N	N channel open drain

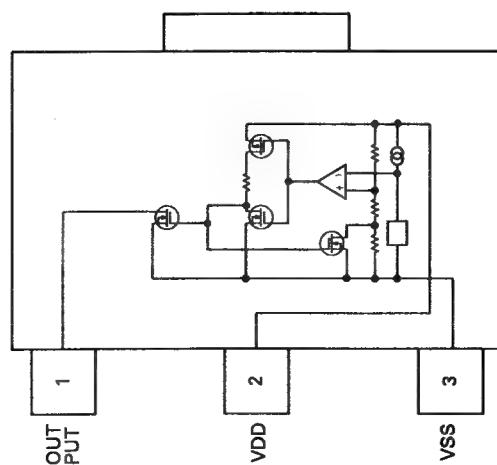
\* PD4448A

IC's marked by \* are MOS type.

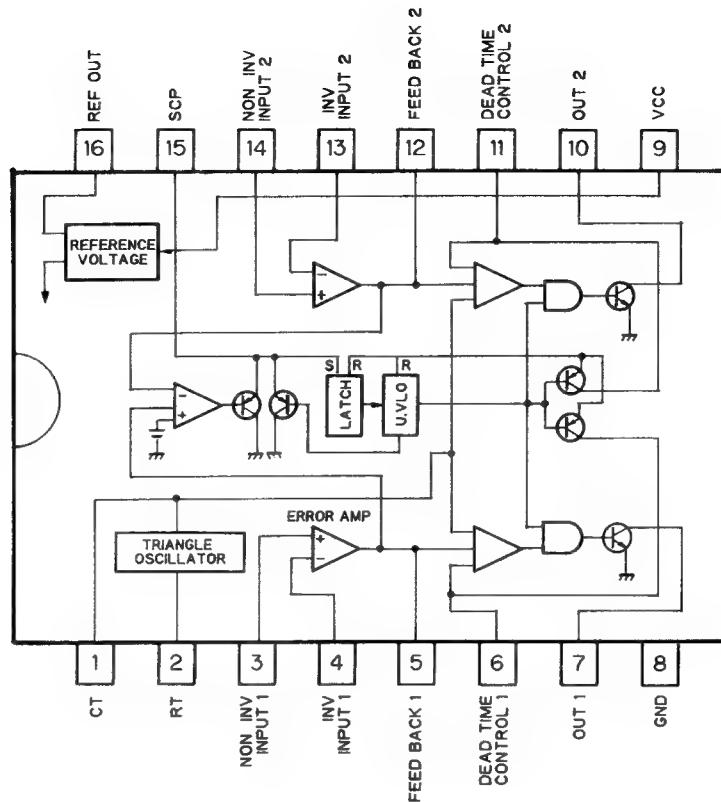
Be careful in handling them because they are very liable to be damaged by electrostatic induction.



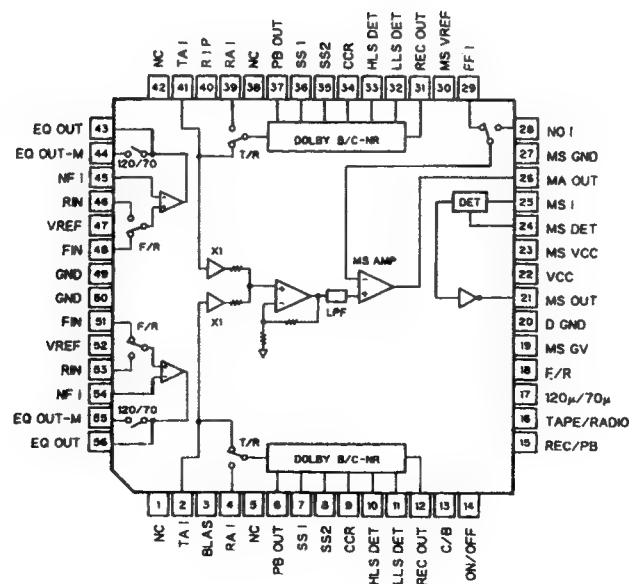
S-80722AN-DK



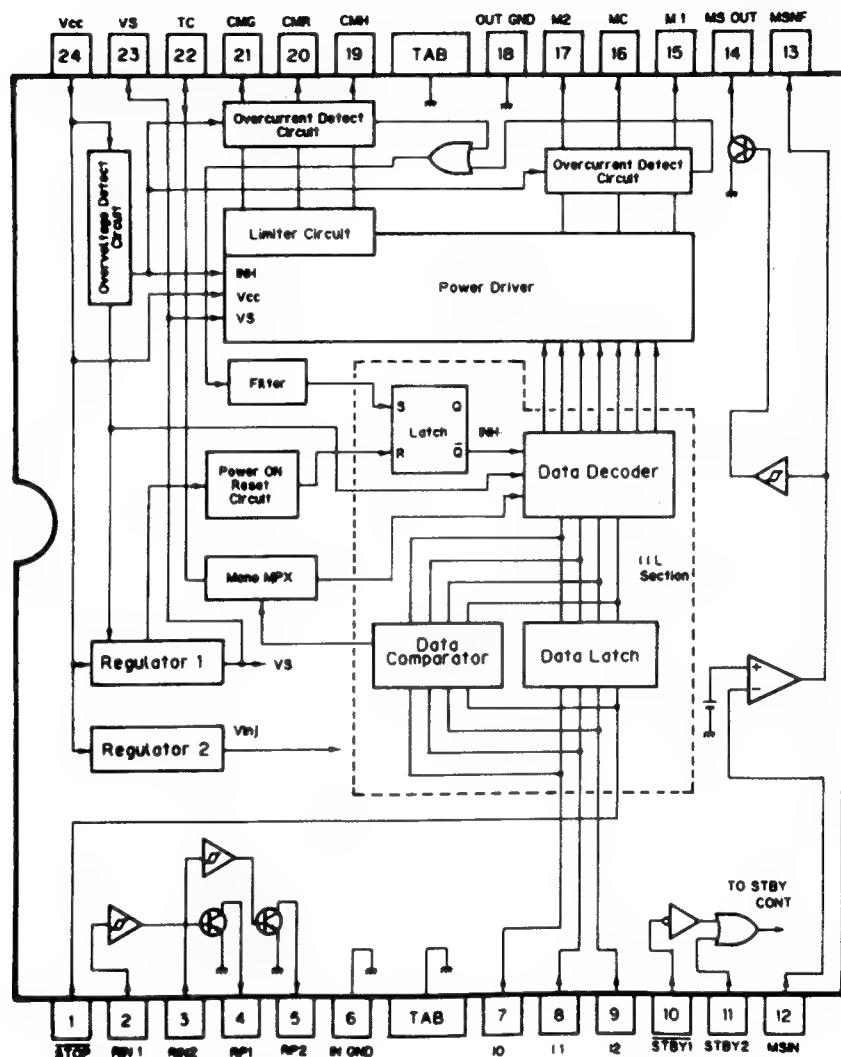
TL1451ANS



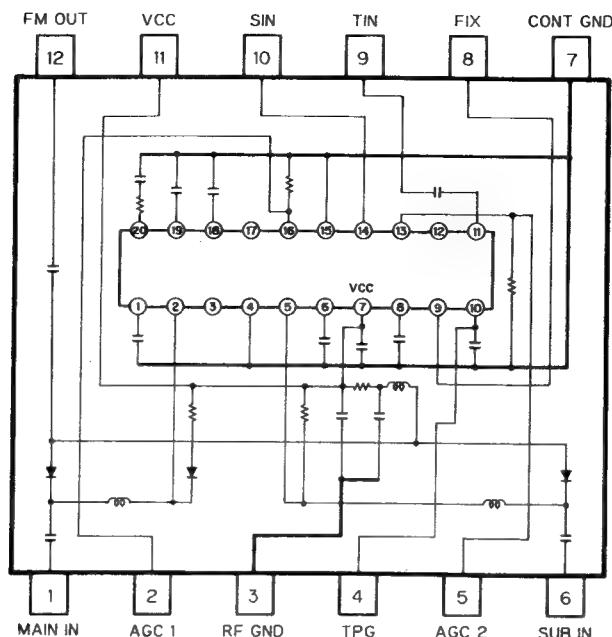
HA12173-01



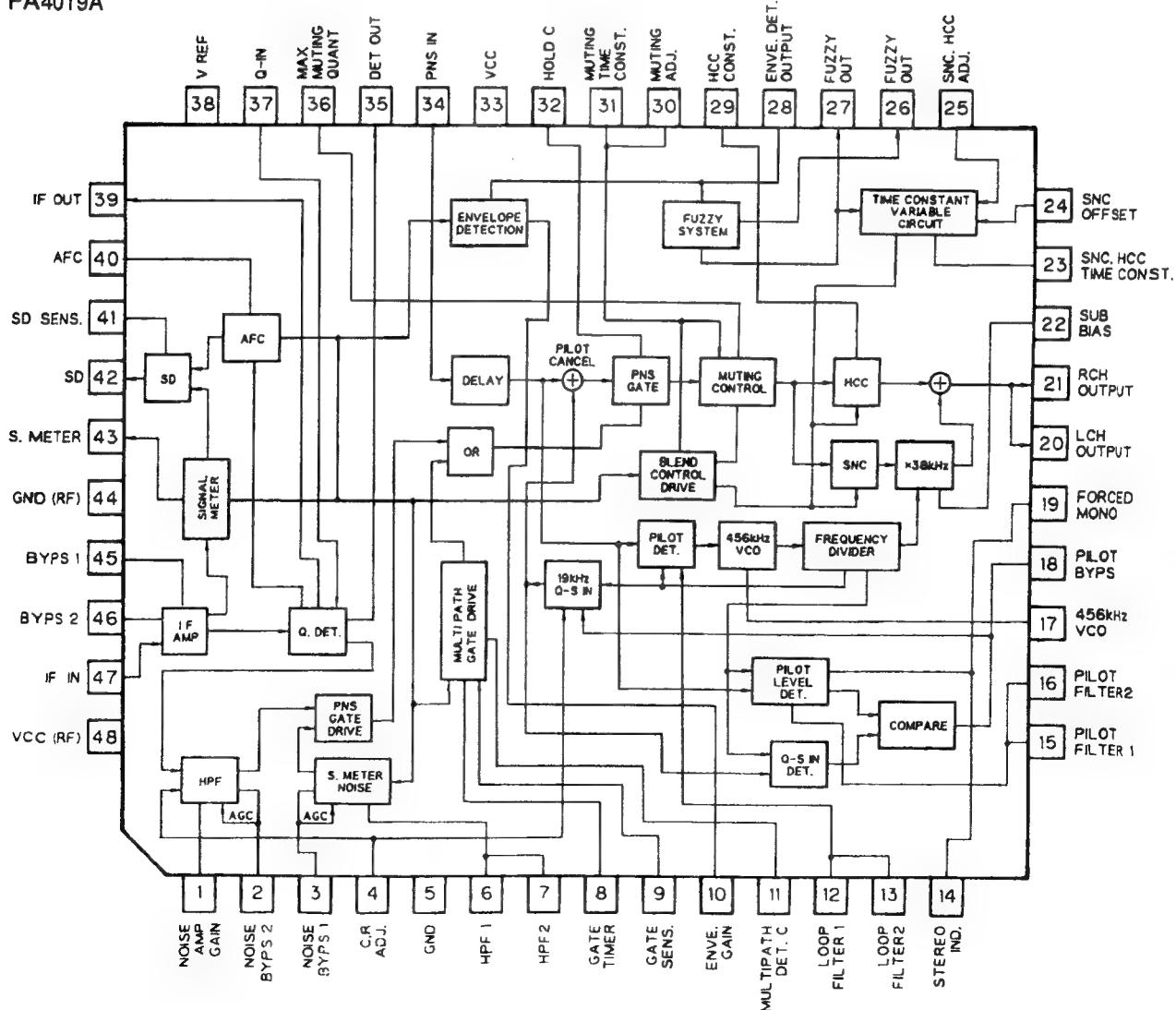
PA3028A



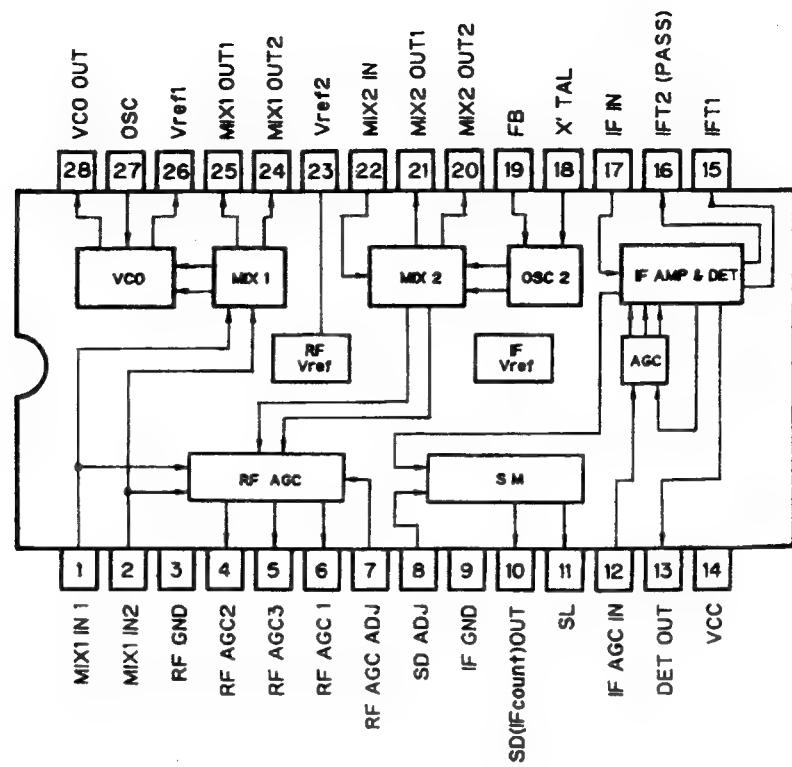
## KHA273B



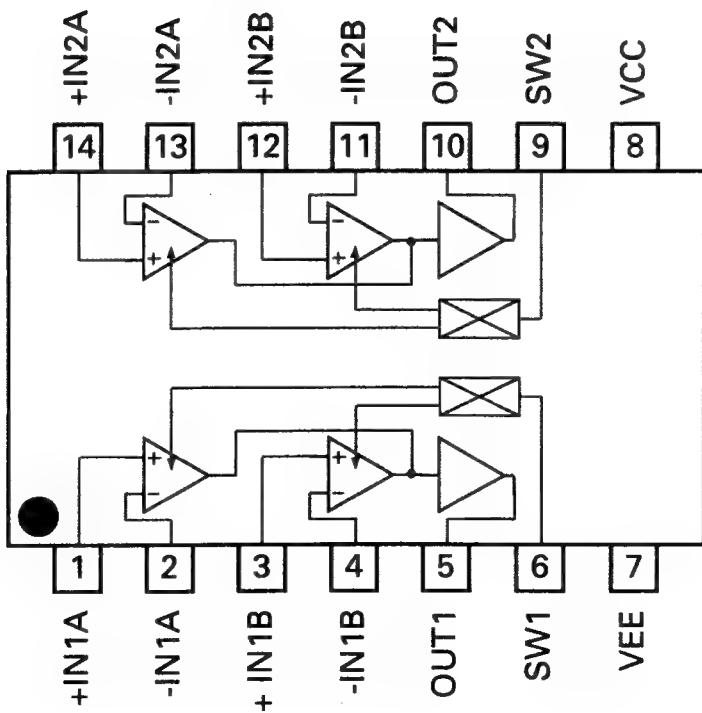
## PA4019A



BAF001A



BA3129F



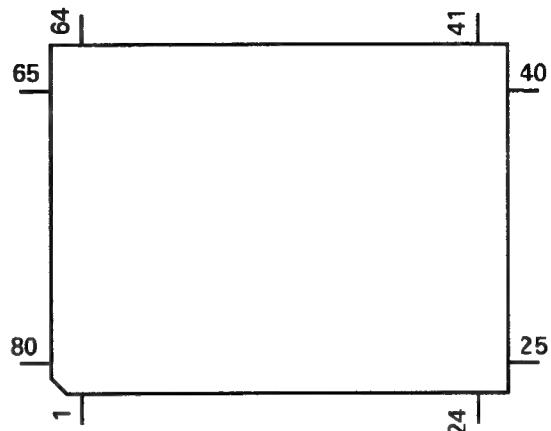
## ●Pin Functions (PD4437A)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	SL	I		SD level input for tuner
2	AVREF	I		A/D converter reference voltage
3,4	VDD			Positive power supply terminal for logic circuit
5	CM	O	C	Cassette mechanism capstan motor control output
6-8	MST2-0	O	C	Mechanism switch strobe output
9	STBY1	O	C	Mechanism driver stand by control
10-12	I2-I0	O	C	Motor driver control output
13	PLAY	O	C	Tape MS filter select output
14	DMUTE	O	C	Deck mute output
15	MUTE	O	C	Mute output
16	RDSSEL	O	C	Select output for RDS IC
17	IPIN	I		Data input from IP BUS interface IC
18	IPOUT	O	C	Data output for IP BUS interface IC
19	IPSCK	O	C	Serial clock output for IP BUS interface IC
20	PEE	O	C	Beep tone output
21	FR	O	C	Head forward/reverse select output
22	WDP	O	C	Watch dog pulse output
23	SYSPW	O	C	System power supply control output
24	TPPW	O	C	Power supply control output for IP BUS interface IC
25	IPRW	O	C	Read / write output for IP BUS interface IC
26	IPRST	O	C	Reset output for IP BUS interface IC
27	IPCS	O	C	Chip select output for IP BUS interface IC
28	IPCD	O	C	Command/data output for IP BUS interface IC
29-32	D7-D4	I/O	NM	Extension I/O data input/output
33	GND			GND
34-37	D3-D0	I/O	NM	Extension IO/RDS data input/output
38-40	CS0-CS2	O	C	Extension IO chip select output
41	BRXEN	I/O	C	Reception enable input/output for display control IC
42	PCE	O	C	Chip enable output for PLL IC
43	TMUTE	O	C	Tuner mute output
44	RDSRST	O	C	Reset output for RDS IC
45	PDO	O	C	Data output for PLL IC
46	PDI	I		Data input from PLL IC
47	MS	I		Cassette mechanism MS sense input
48	IPIRQ.	I		Interrupt input from IP BUS interface IC
49	REMIN	I		Remote control signal input
50	NC			Not used
51	SUBDAT	I/O	C	Serial data input/output for extension I/O IC
52	SUBSCK	I/O	C	Serial clock input / output for extension I/O IC
53	ABSENS	I		ACC/BACK UP power supply shut down sense input
54	GND			GND
55	XT1			Not used
56	XT2			Not used
57	GND			GND
58	X1			Crystal oscillator connection pin
59	X2			Crystal oscillator connection pin
60	RESET	I		Reset input
61	RD	O	NM	Extension IO / RAM read signal output
62	WR	O	NM	Extension IO / write signal output
63,64	XT1,XT0	O	NM	Extension I/O select output
65	ANTFIX	O	NM	Tuner diversity fix select output
66	RDSEN	O	NM	Enable output for RDS IC
67	PCK	O	C	Serial clock output for PLL IC
68	RDSCK	O	C	Serial clock output for RDS IC
69	RDSRDY	I		Ready input from RDS IC
70	SD	I		SD input
71	NES	I		Cassette mechanism forward end sense input
72	RES	I		Cassette mechanism reverse end sense input

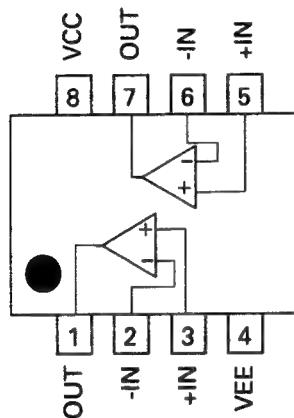
Pin No.	Pin Name	I/O	Output Format	Function and Operation
73	GND			GND
74-77	MD0-MD3	I		Cassette mechanism strobe input
78,79	NC			Not used
80	RDSENS	I		Remote control detach sense input

Output Format	Meaning
C	CMOS
NM	Middle resistivity N channel open drain

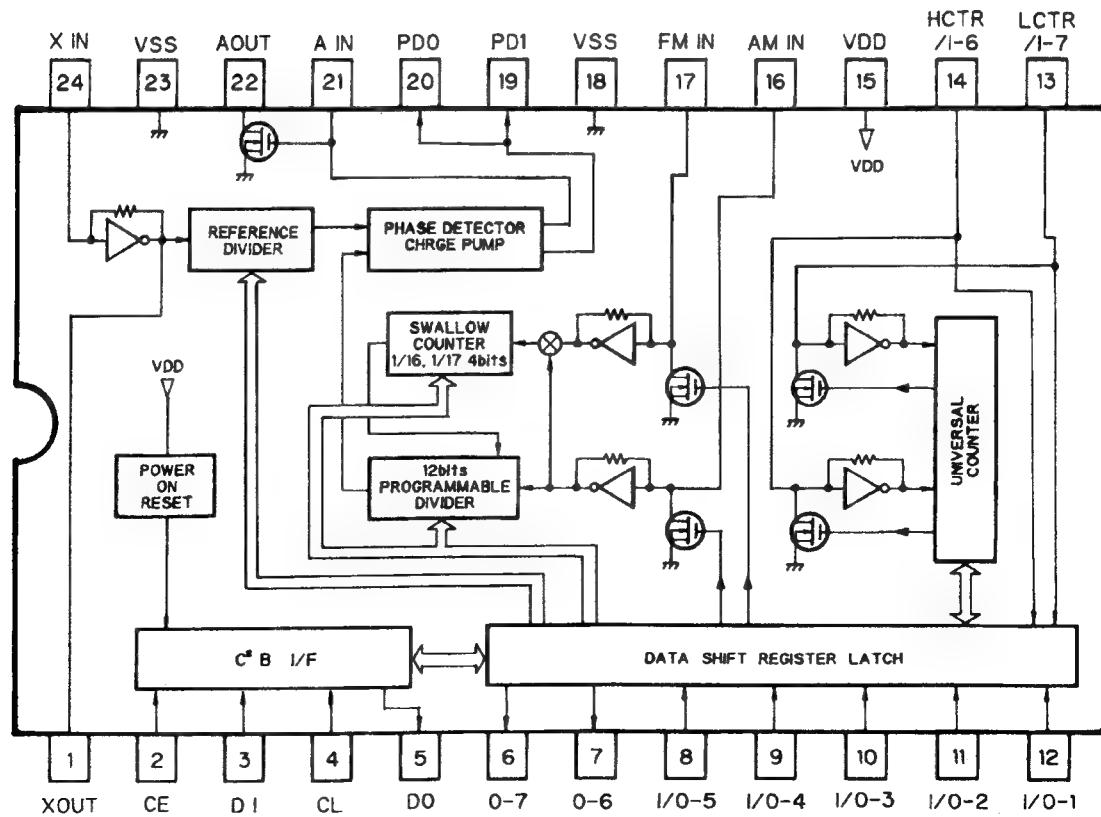
\*PD4437A



NJM4558M



LC72140M

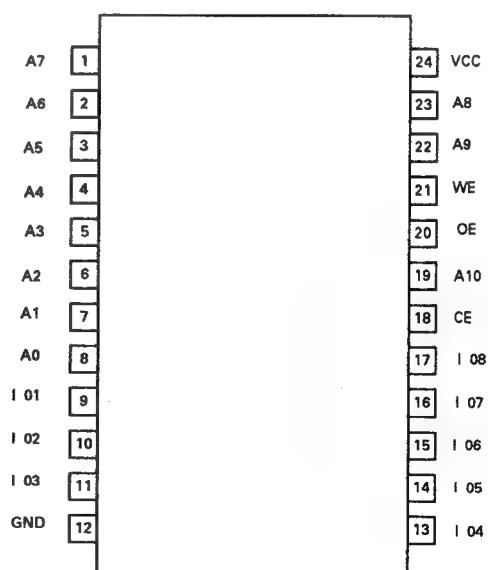
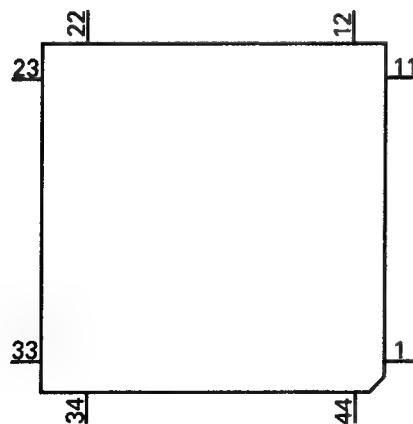


## ●Pin Functions (IC602:MSM82C55A-2GS)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	CS1	I		Extension I/O chip select input
2	GND			GND
3,4	XA1, XA0	I		Extension I/O address input
5	SUBVDD	I		Extension I/O power control input
6	IPSWDB	O	C	Switched +B output for IP BUS
7	LCDPW	O	C	LCD power supply control output
8	RDTSW	O	C	Remote control regulator switching output
9	TUNANT	O	C	Auto antenna output
10	AXMUTE	O	C	AUX mute output
11	TUNPW	O	C	Tuner power control output
12	NC			Not used
13	TXRST	O	C	Not used
14	CLOSE	I		CLOSE key input
15	ILMIN	I		Illumination power sense input
16	LIMIT	I		Limit sense of analog audio signal
17	VDD			Power supply
18,19	MODEL0,1	I		Model select input
20	BCHK	I		BACK UP voltage check input
21	TEST	I		Test terminal
22	NC			Not used
23	TESTIN	I		Test program mode input
24	VDD			Power supply
25-32	D7-D0	I/O	C	External data input/output
33	RESET	I		Reset Input
34	WR	I		Write signal input
35	FSENS	I		Door sense input from free space remote control
36	TELIN	I		Telephone mute input
37	DSENS	I		Grille detach sense
38	BSENS	I		Back up power sense input
39	VDD			Power supply
40	ASENS	I		ACC power sense input
41	WDP	I		Watch dog pulse input
42	OSENS	I		Flap open sense input
43	CSENS	I		Flap close sense input
44	RD	I		Read signal input

MSM82C55A-2GS

LH5116HN-10T

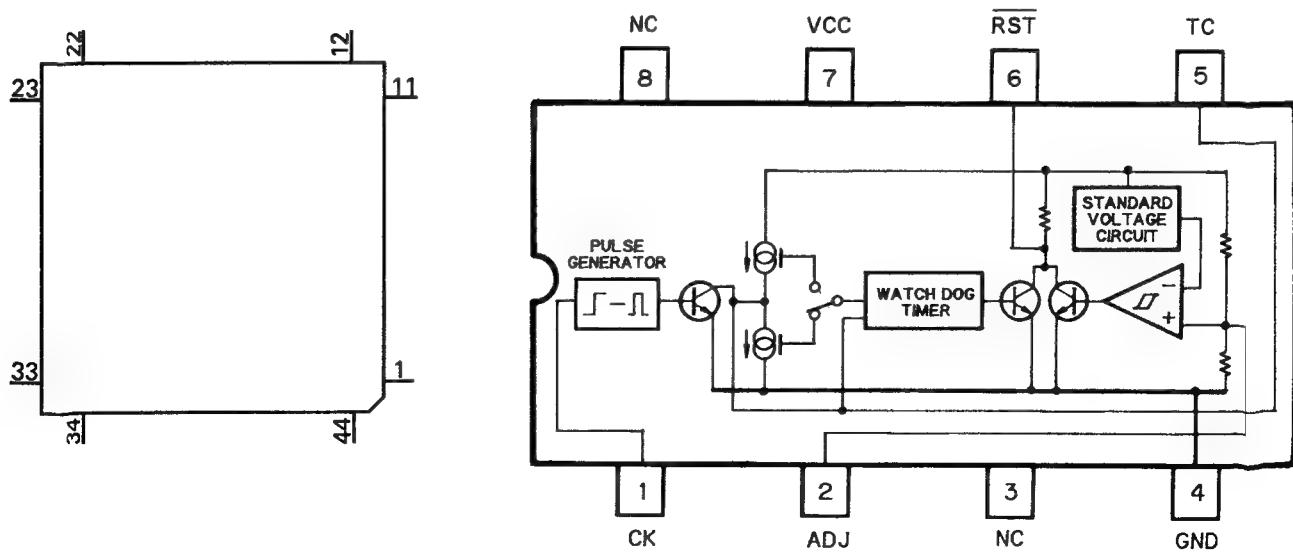


## ●Pin Functions (IC603:MSM82C55A-2GS)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	CS0	I		Extension I/O chip select input
2	GND			GND
3,4	XA1,XA0	I		Extension I/O address input
5	BRST	O	C	Reset output extension I/O IC
6	FLPILM	O	C	Inside of flap illumination output
7	DPD	O	C	A/D converter offset calibration output
8	FLPPW	O	C	Flap motor driver power ON/OFF output
9	FLPOPN	O	C	Flap motor open output
10	FLPCLS	O	C	Flap motor close output
11	ILMPW	O	C	Illumination power supply control output
12	NC			Not used
13	AVREF	I		A/D converter reference voltage
14-16	A8-A10	O	C	Extension RAM address output
17	VDD			Power supply
18	NC			Not used
19	METAL	O	C	METAL output
20	NR	O	C	Dolby NR ON/OFF select output
21	DLBYBC	O	NH	Dolby NR B/C select output
22	NC			Not used
23	MONO	O	NM	Forced mono output
24	VDD			Power supply
25-32	D7-D0	I/O	C	External data input/output
33	RESET	I		Reset input
34	WR	I		Write signal input
35-38	A7-A4	O	C	Extension RAM address output
39	VDD			Power supply
40-43	A3-A0	O	C	Extension RAM address output
44	RD	I		Read signal input

MSM82C55A-2GS

PA0054AM

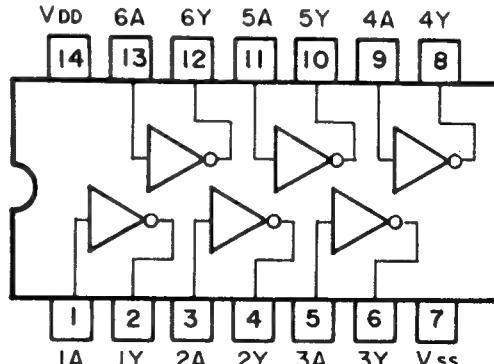
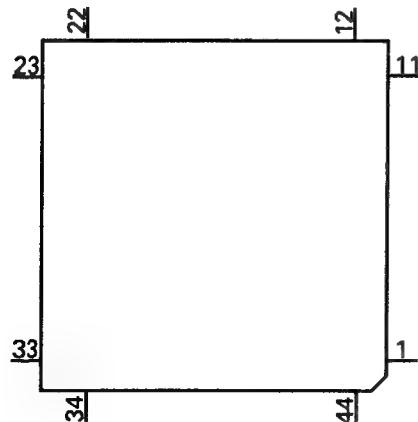


## ●Pin Functions (M51581FP)

Pin No.	Pin Name	I/O	Function and Operation
1	TX	O	Digital audio interface format output
2	RESET	I	Reset input
3	RX1	I	Digital audio data input 1
4	NFR	O	RX1 level converter output
5	RX2	I	Digital audio data input 2
6	RXSEL	I	RX select input
7,8	PD1,PD2	O	Phase comparative output for charge pump VCO
9	UNLOCK	O	Unlock detect output
10	RXCKI	I	VCO clock input
11	RXCKO	O	VCO clock output
12	SDI	I	Serial audio data input
13	BCK	I/O	Digital audio bit clock input/output
14	LRCK	I/O	Audio data word select input/output
15	SDO	O	Serial audio data output
16	ADSDI	I	A/D converter serial audio data input
17	VSS		GND
18	ADSEL	I	Serial data audio source select input
19	FLAGI	I	Error flag input
20	FLAGO	O	Error flag output
21	WCK	O	Word clock output
22	ASL	I	Audio data sampling length select input "H":24 bits "L":16 bits
23	IIS	I	Audio data format select input
24	MSBF	I	MSB select input
25	LRCKPOL	I	LRCK pole select input "H":Lch "L":Rch
26	MSTCK	I/O	Master clock input/output
27	CKSEL	I	Master clock frequency select input
28	REFCK	I	Reference clock input for sampling frequency accurate check
29	CKACO	O	Sampling frequency accurate check output
30	MUTE	I	Mute control input
31,32	MODE0-1	I	Mode select input
33	IN/OUT	I	Transmission reception select input
34,35	CAT0,1	I/O	Category information input/output
36	TXOE	I	TX output enable input
37	FSINSEL	I	fs information select input
38	VDD		Power supply
39	VSS		GND
40	TYPE	I/O	Type information input/output
41,42	FS0-FS1	I/O	fs information input/output
43	COPY	I/O	Copy information input/output
44	EMP	I/O	Emphasis information input/output

M51581FP

TC74HCU04AF

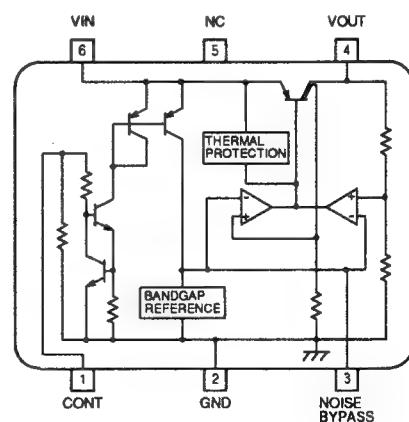
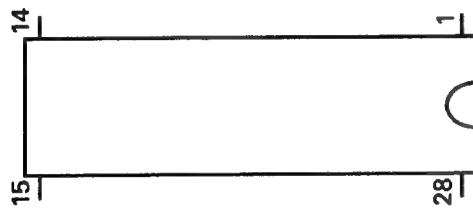


## ●Pin Functions (AK5369-VS)

Pin No.	Pin Name	I/O	Function and Operation
1	AGND		Analog circuit GND
2	AINL	I	Lch analog input
3	ZEROL	I	Lch zero level input
4	VA+		Analog positive power supply terminal +5V
5	VA-		Analog negative power supply terminal -5V
6	APD	I	Analog power down input
7	ACAL	I	Analog calibration input
8	NC		Not used
9	DCAL	O	Digital calibration output
10	DPD	I	Digital power down input
11	TEST	I	Test terminal
12	CMODE	I	Master clock select input
13	S MODE	I	Interface clock select input
14	L/R	I/O	Channel select input/output
15	BCK	I/O	Serial data clock input/output
16	SDATA	O	Serial data output
17	FSYNC	I/O	Flame synchronizing clock input/output
18	VD+		Digital power supply +5V
19	DGND		Digital circuit GND
20	CLK	I	Master clock input
21	OCLK	O	128fs clock output
22	NC		Not used
23	ICLK	I	128fs clock input
24	LGND		Analog logic ground terminal
25	VL+		Analog logic power supply +5V
26	ZEROR	I	Rch zero level input
27	AINR	I	Rch analog input
28	VREF	I	A/D converter reference voltage input

AK5369-VS

TK11235



## ●Pin Functions (XRA6288FS)

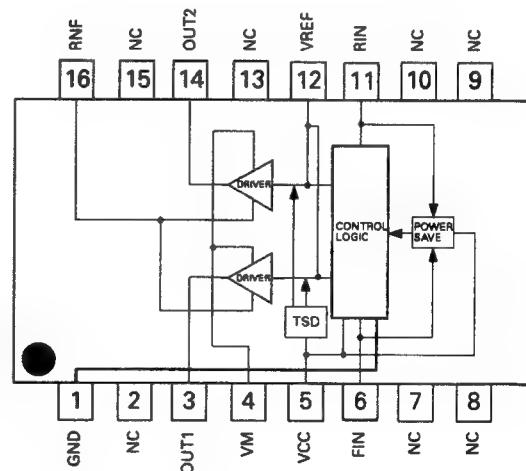
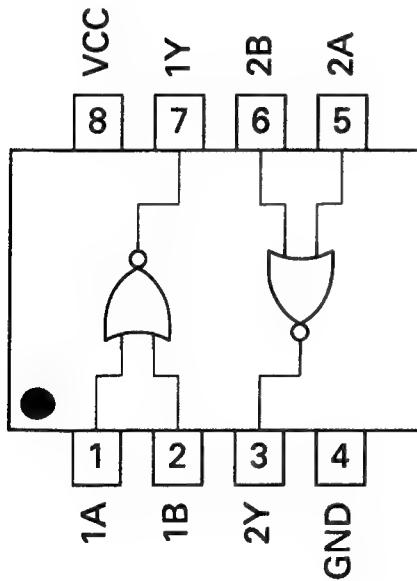
Pin No.	Pin Name	I/O	Function and Operation
1	GND		GND
2	NC		Not used
3	OUT1		Motor output terminal
4	VM	O	Motor power supply terminal
5	VCC		Power supply terminal
6	FIN	I	Logic input
7-10	NC		Not used
11	RIN	I	Logic input
12	VREF	I	Output high voltage set up
13	NC		Not used
14	OUT2	O	Motor output terminal
15	NC		Not used
16	RNF		Output GND

## ●Truth Table

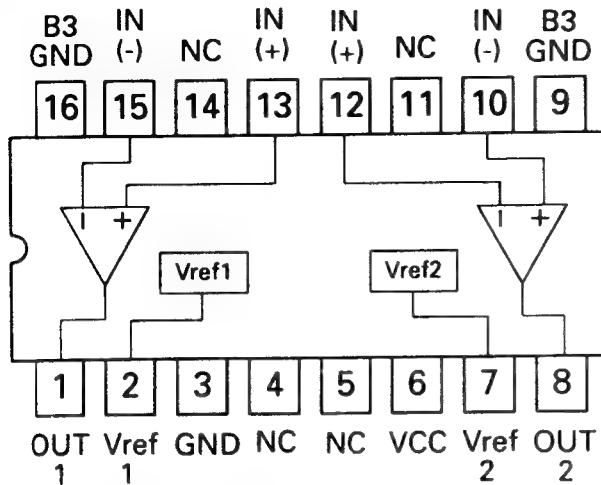
FIN	RIN	OUT1	OUT2	Mode
H	L	H	L	Forward Mode
L	H	L	H	Reverse Mode
H	H	L	L	Brake Mode
L	L	OPEN	OPEN	Stand-by Mode

\*TC7W02F

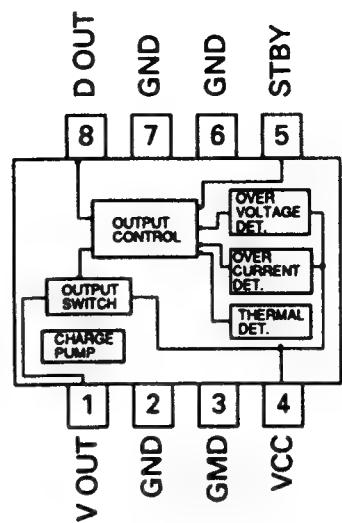
XRA6288FS



TA8181F



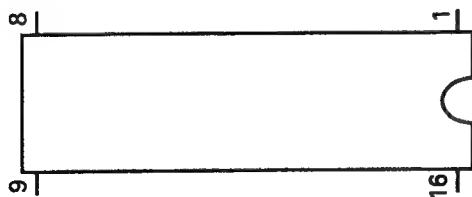
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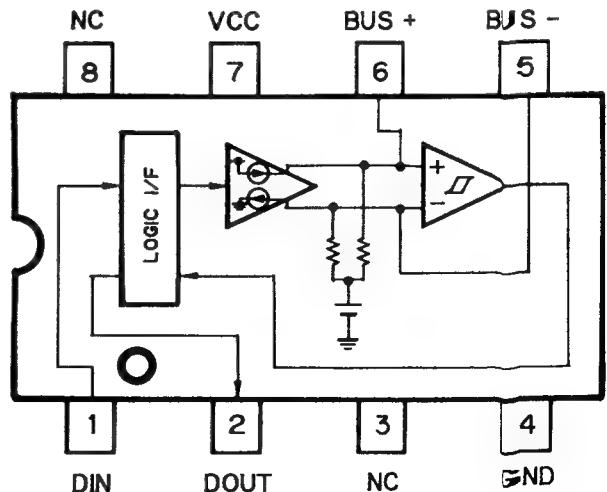
### ●Pin Functions (PD4308AM)

Pin No.	Pin Name	I/O	Function and Operation
1	APCSK	I/O	Clock input/output
2	APSI	I	Data input
3	APSO	O	Data output
4	APIRQ	O	Interrupt output
5	APRW	I	Read/write select input
6	XI		Oscillating element connection pin
7	XO		Oscillating element connection pin
8	GND		GND
9	RX	I	Data input
10	TX	O	Data output
11	NC		Not used
12	APCD	I	Command/Data select input
13	APCS	I	Chip select input
14	APRST	I	Reset input
15	VDD		Power supply terminal
16	VDD		Power supply terminal

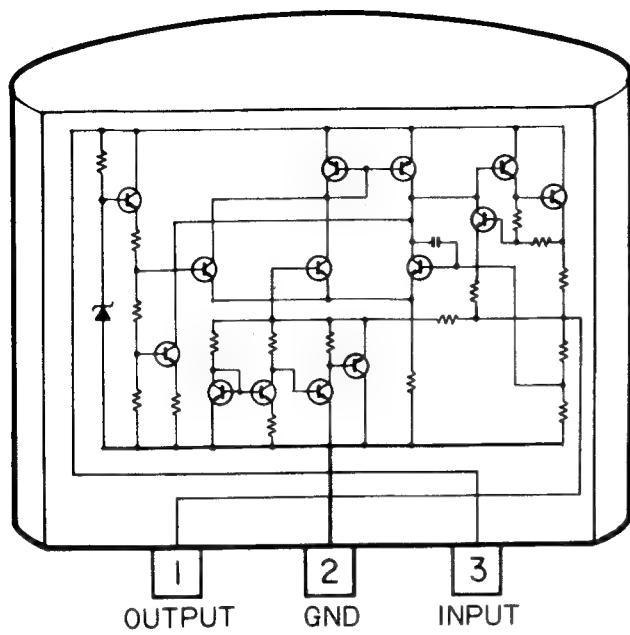
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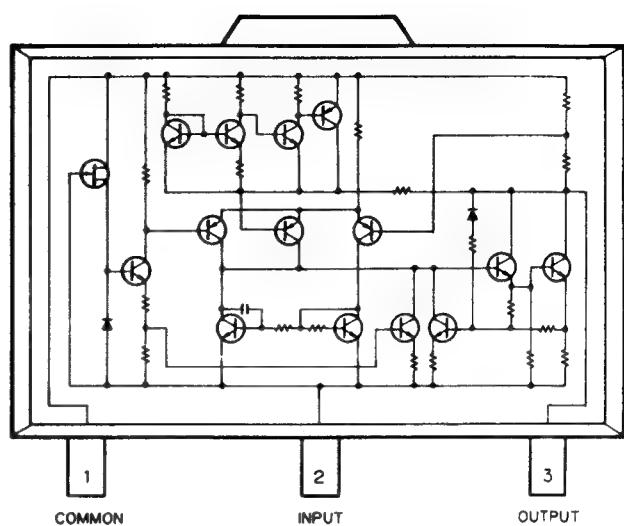
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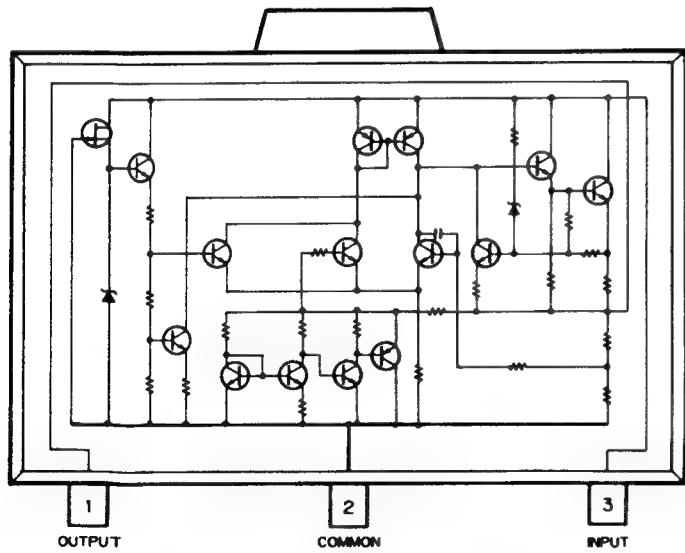
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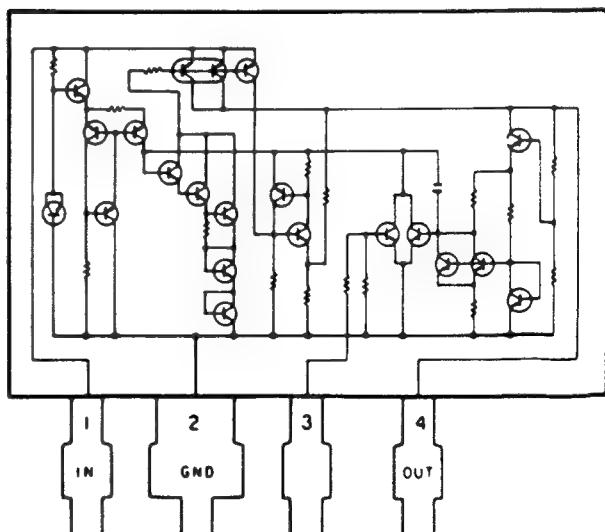
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NJM78L05UA



AN6540

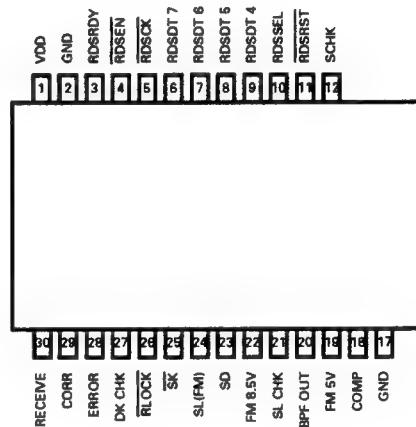
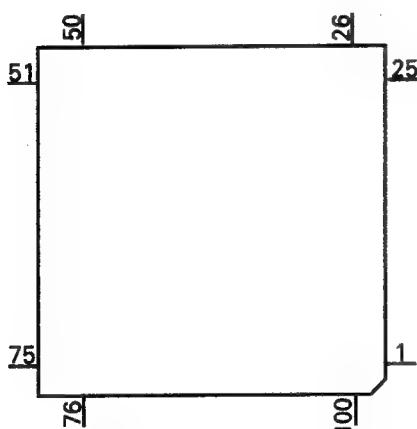


●Pin Functions (HD61202TF)

Pin No.	Pin Name	I/O	Function and Operation
1	VDD		Power supply
2-5	V4R-V1R		LCD drive level power supply
6	VEE		LCD drive circuit power supply
7-70	Y64-Y1	O	LCD segment output
71	VEE		LCD drive circuit power supply
72-75	V1L-V4L		LCD drive level power supply
76	GND		GND
77-84	D0-D7	I/O	Data BUS input/output
85	NC		Not used
86,87	CS3,CS2	I	Chip select input
88	NC		Not used
89	CS1	I	Chip select input
90	NC		Not used
91	LRST	I	Reset input
92	R/W	I	Read/write select input
93	D/I	I	Data/instruction select input
94	CL	I	Synchronizing signal input of display data latch
95,96	φ2, φ1	I	Clock input
97	E	I	Write / read enable input
98	FRM	I	Frame signal input
99	ADC	I	Display RAM Y address select input
100	M	I	LCD drive AC signal input

\*HD61202TF

CWV1034(RS-K1/EW)

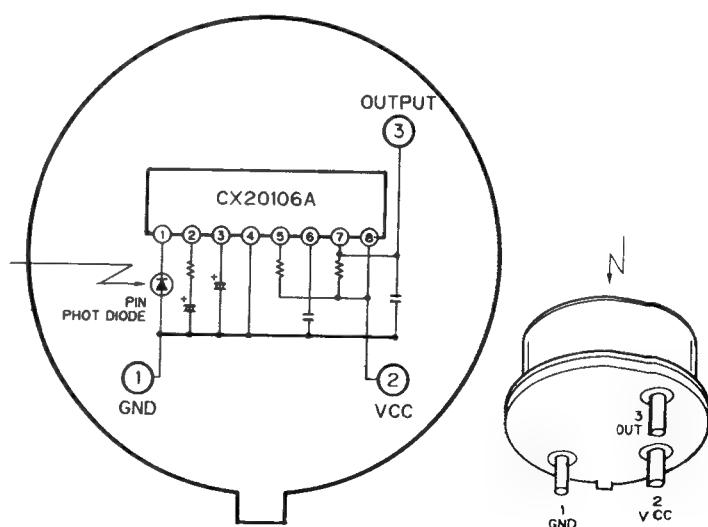
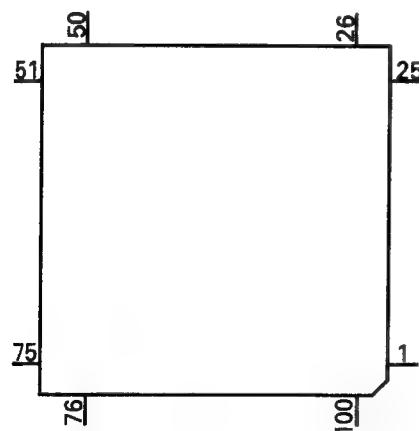


## ●Pin Functions (HD61203TF)

Pin No.	Pin Name	I/O	Function and Operation
1-19	X19-X1	O	LCD common drive output
20	VEE		LCD drive circuit power supply
21,22	V6L,V5L		LCD drive level power supply
23,24	V2L,V1L		LCD drive level power supply
25	VDD		Power supply
26	DL	I/O	Shift resistor data input/output
27	FS	I	Frequency select input
28,29	DS1,DS2	I	Display duty select input
30	C	I	Oscillator
31	NC		Not used
32	R		Oscillator
33	NC		Not used
34	CR		Oscillator
35	STB	I	Test input
36	SHL	I	Shift direction select input of shift resistor
37	GND		GND
38	NC		Not used
39	M/S	I	Master slave select input
40,41	φ2,φ1	O	Clock output
42	NC		Not used
43	FRM	O	Frame signal output
44	M	O	LCD drive AC signal output
45	NC		Not used
46	FCS	I	Shift clock phase select input
47	DR	I/O	Shift resistor data input/output
48,49	CL1	I	Test input
49	CL2	I/O	Shift clock input/output
50	TH	I	Test input
51,52	V1R,V2R		LCD drive level power supply
53,54	V5R,V6R		LCD drive level power supply
55	VEE		LCD drive circuit power supply
56-100	X64-X20	O	LCD common drive output

\*HD61203TF

BX-1393

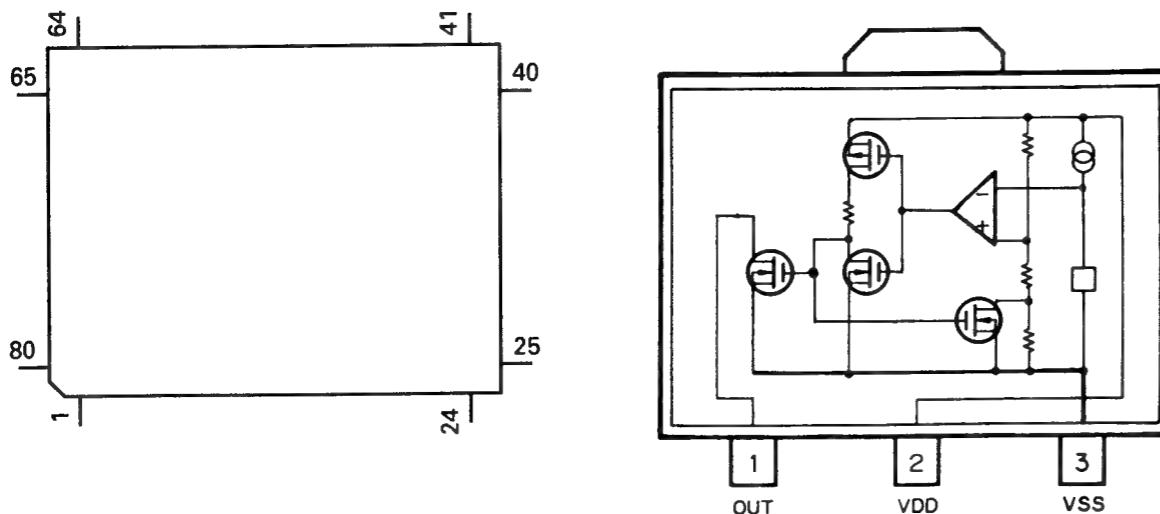


## ●Pin Functions (PD3235A)

Pin No.	Pin Name	I/O	Function and Operation
1	XTAL	I	Oscillation continuation terminal
2	EXTAL		
3	MD1	I	Not used
4	MD0	I	Cassette mechanism strobe input 0
5	NMI	I	Not used
6	VCC		
7	STBY	I	Not used
8	VSS		GND
9-13	KEYIN0-4	I	Key data input
14,15	NC		Not used
16	E	O	Enable clock output for LCD driver
17	SDTT	O	Serial data output for extension I/O IC
18	SDTR	I	Serial data input from extension I/O IC
19	SCK	I	Serial clock input/output for extension IC
20-22	NC		Not used
23	SBUSY	O	Busy output for extension I/O IC
24	LRES	O	Reset output for LCD driver
25	NC		Not used
26	TOS	O	Chip select output for LCD driver
27	AS	O	Not used
28	LCDR/W	O	Read / write output for LCD driver
29	PRRD	O	Read signal output for ROM IC
30	WAIT	I	Not used
31	VCC		
32-39	A15-A8	O	Address BUS output for ROM IC
40	VSS		GND
41-48	A7-A0	O	Address BUS output for ROM IC
49-56	D0-D7	I/O	Data input/output for ROM IC
57-60	CT1-CT4	O	LCD contrast control output
61	REMIN	I	Remote control signal input
62	BRST	O	Reset output extension I/O IC
63	NC		Not used
64	RES	I	Reset input

\*PD3235A

S-80743AN-D7

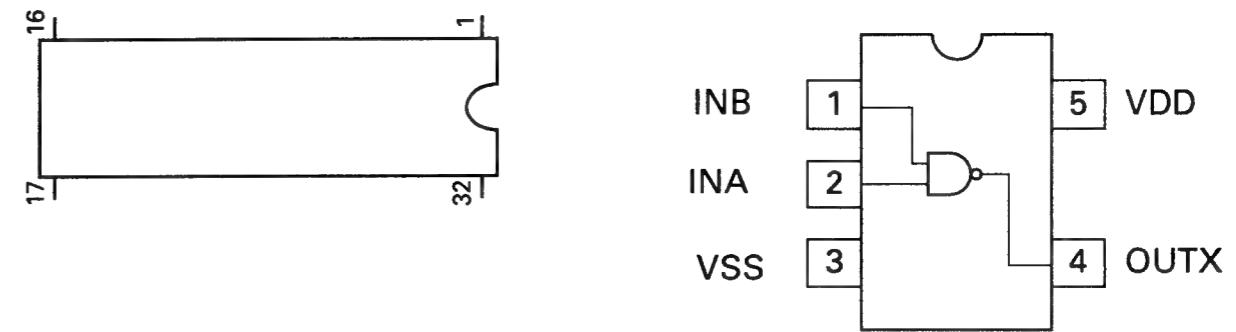


## ●Pin Functions (PD3256A)

Pin No.	Pin Name	I/O	Function and Operation
1	NC		Not used
2,3	A16,A15	I	Address BUS input
4	A12	I	Address BUS input
5-12	A7-A0	I	Address BUS input
13-15	D0-D2	O	Data output
16	VSS		GND
17-21	D3-D7	O	Data output
22	CE	I	Chip enable input
23	A10	I	Address BUS input
24	OE	I	Output enable input
25	A11	I	Address BUS input
26,27	A9,A8	I	Address BUS input
28,29	A13,A14	I	Address BUS input
30	NC		Not used
31	A16	I	Address BUS input
32	VDD		Power supply

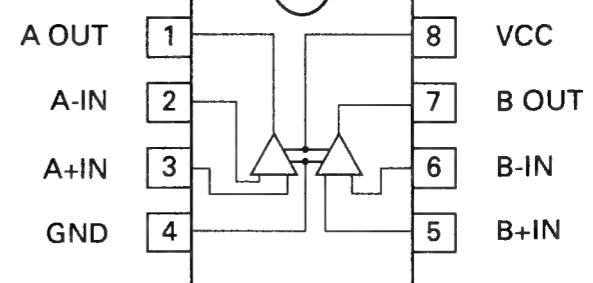
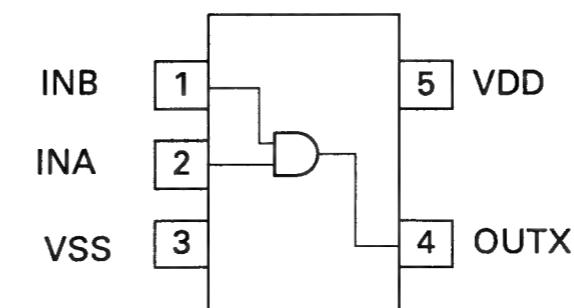
\*PD3256A

\*TC7S00F



\*TC4S81F

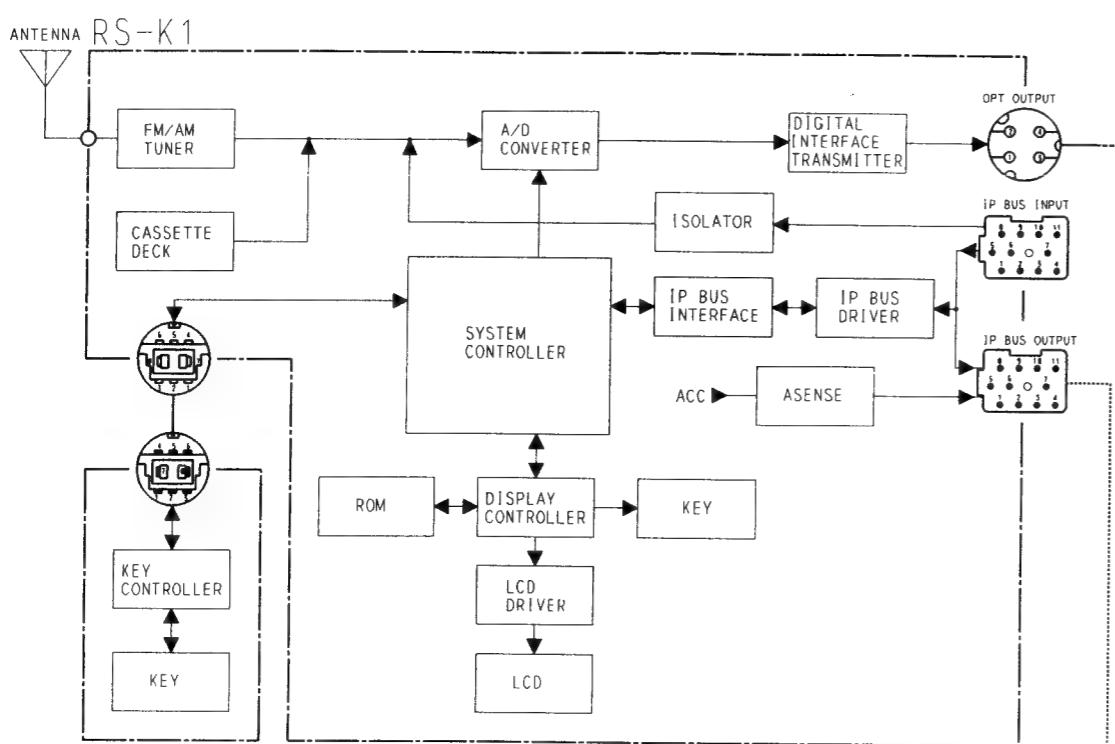
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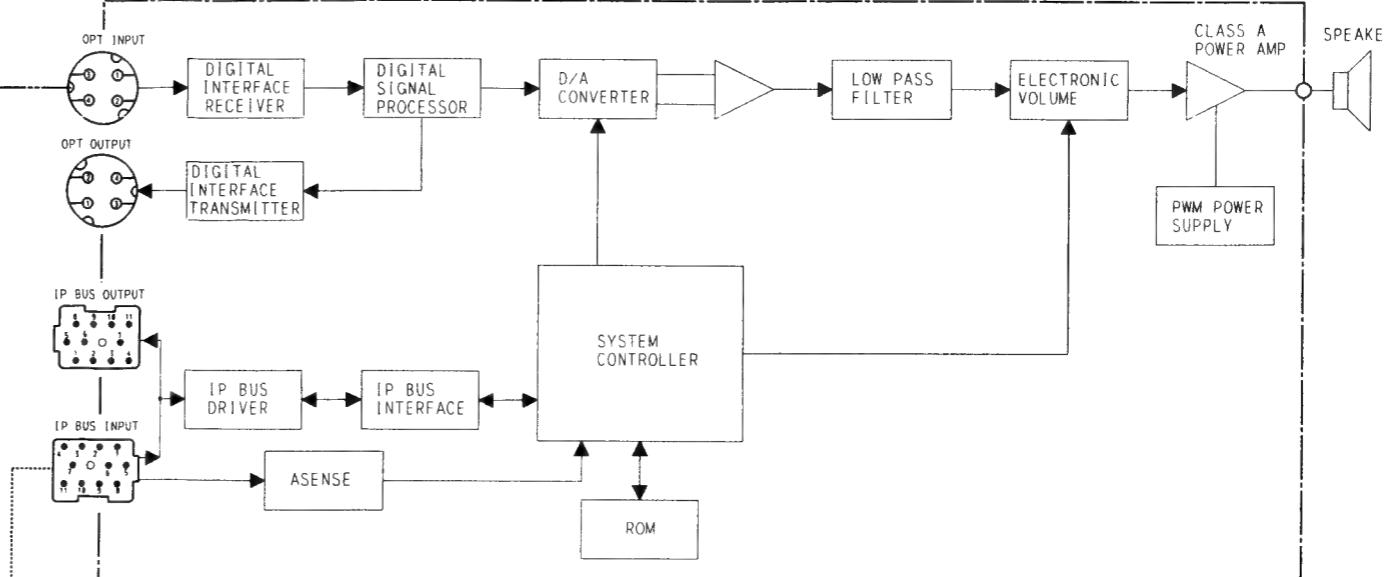
## 5. BLOCK DIAGRAM

## ● SYSTEM

A

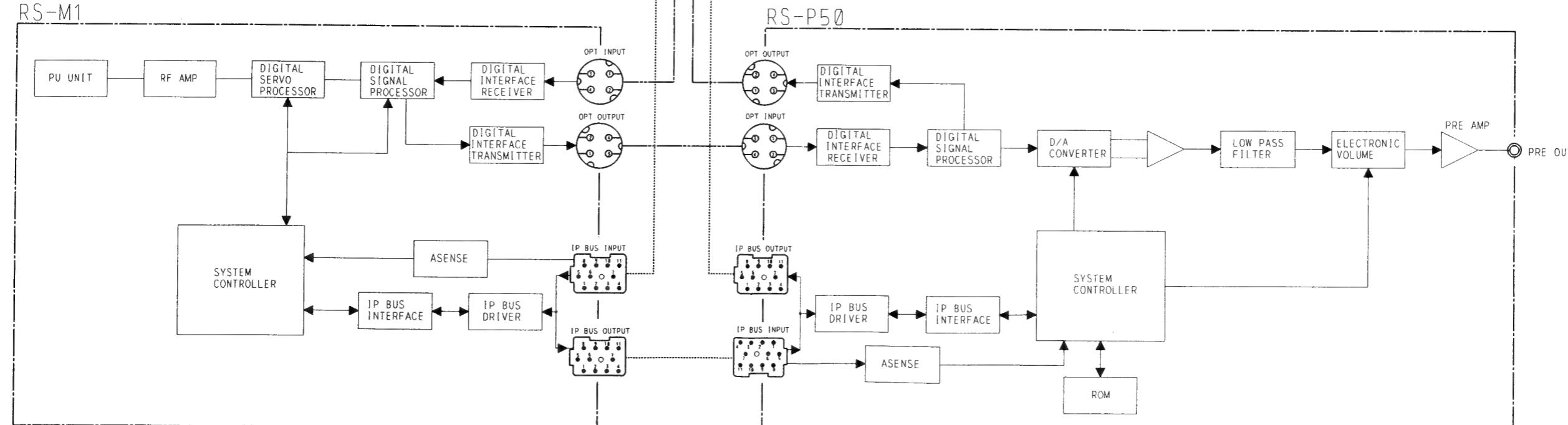
FREE SPACE REMOTE CONTROL  
RS-C100

RS-A2, RS-A1



RS-M1

RS-P50



— IP BUS LINE  
- - - OPTICAL LINE

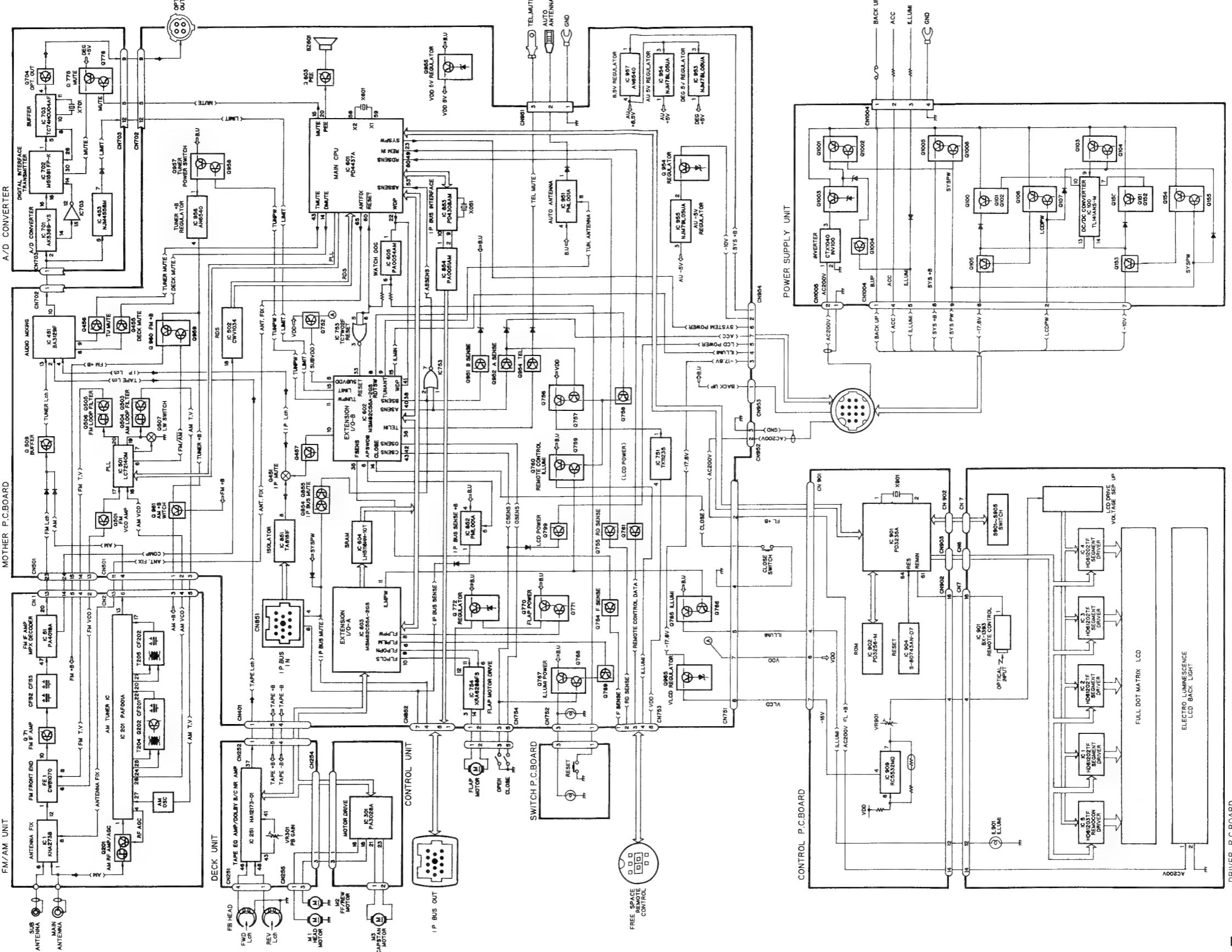
Fig.15

●RS-K1/EW

OLCI

### Segm

g.16



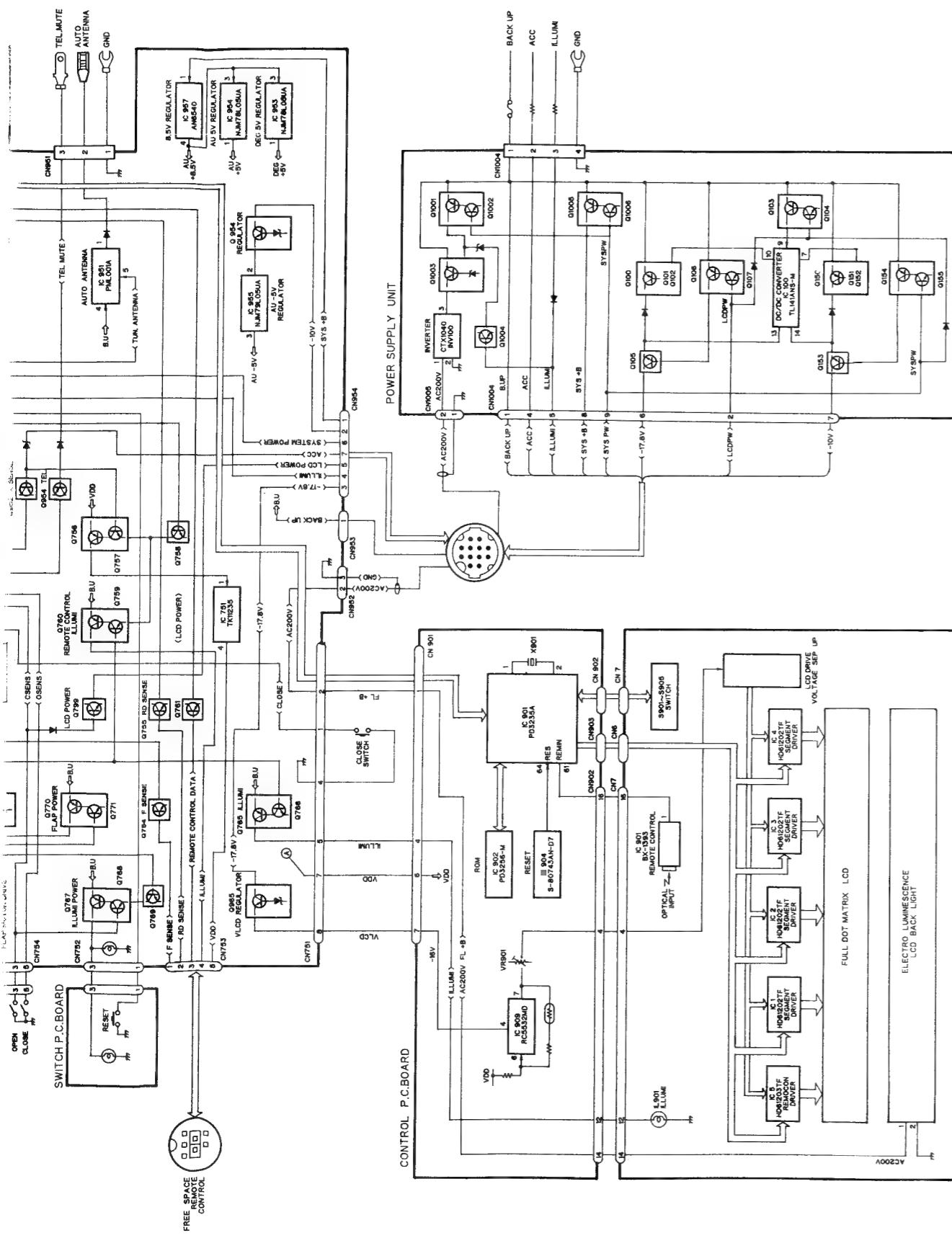


Fig.1

●LCD(CAW1189)

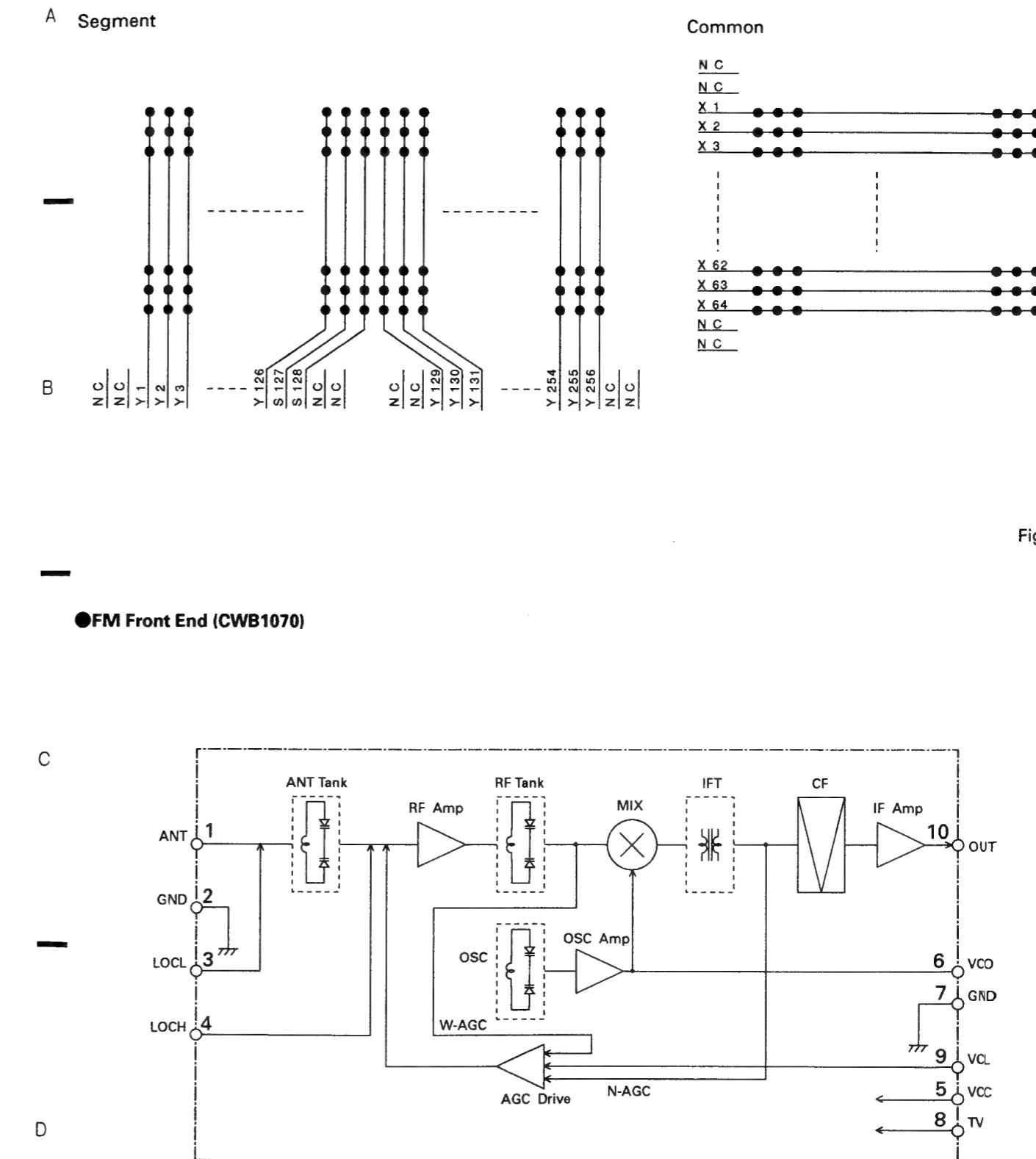


Fig. 18

## 6. CIRCUIT DIAGRAM AND P.C. BOARDS PATTERN

### 6.1 AUDIO TUNER UNIT (EW)

#### ● Connection Diagram

A/D CONVERTER P.C. BOARD

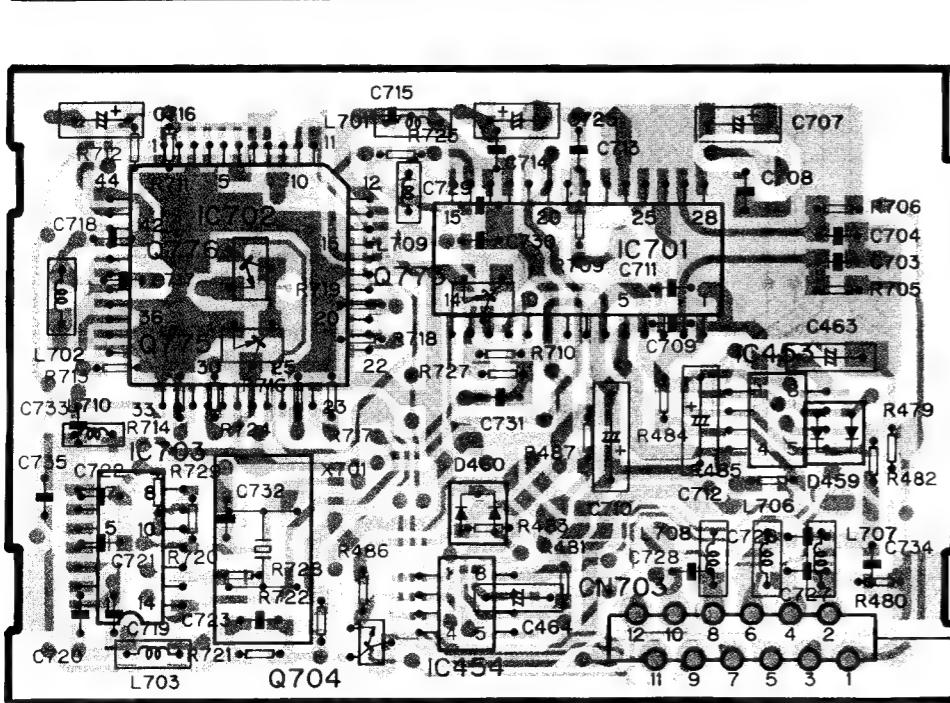
Q776

Q775

Q773

IC, Q IC703 IC702 Q704 IC454 IC701

IC453



### MOTHER P.C. BOARD

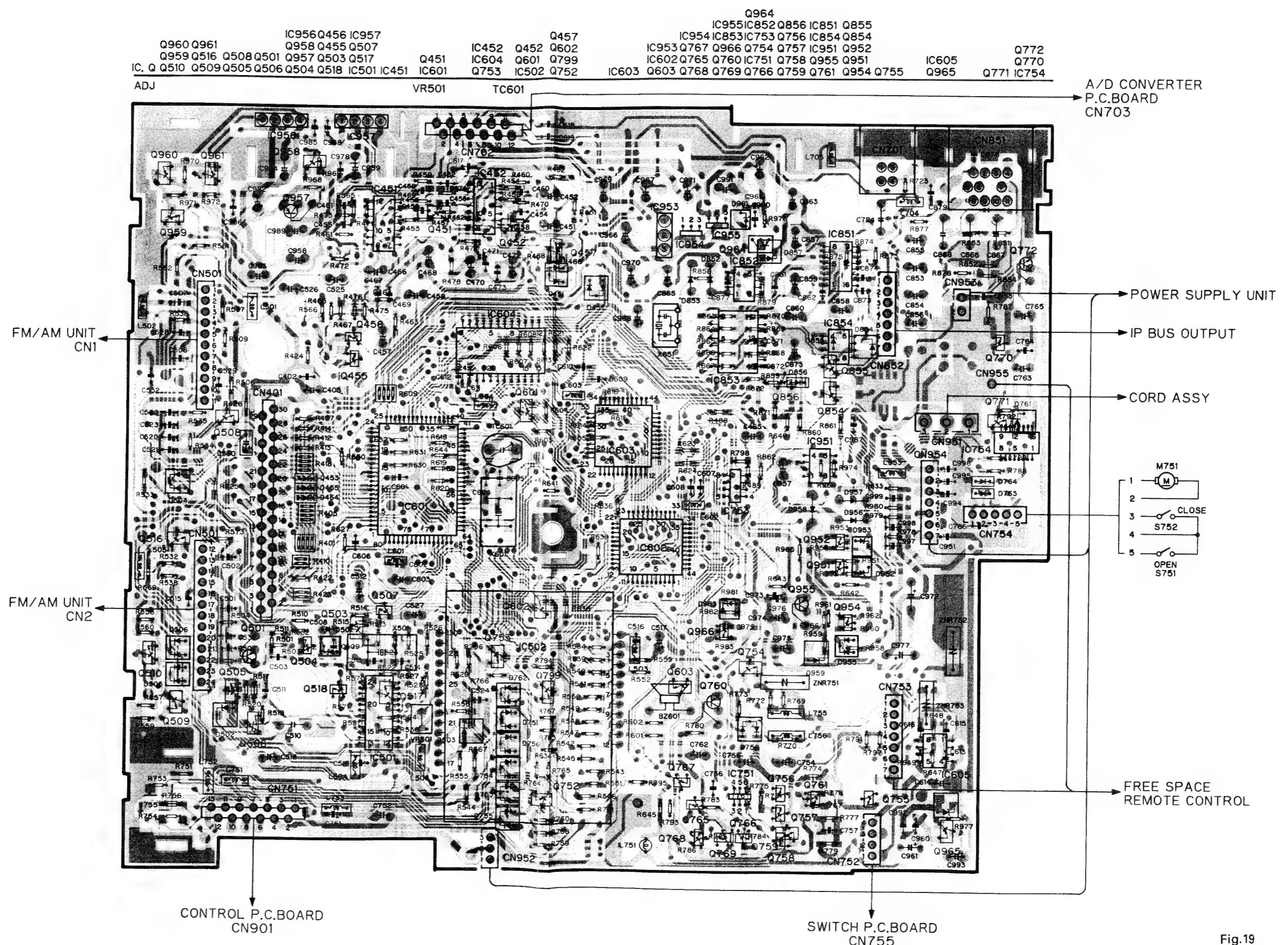
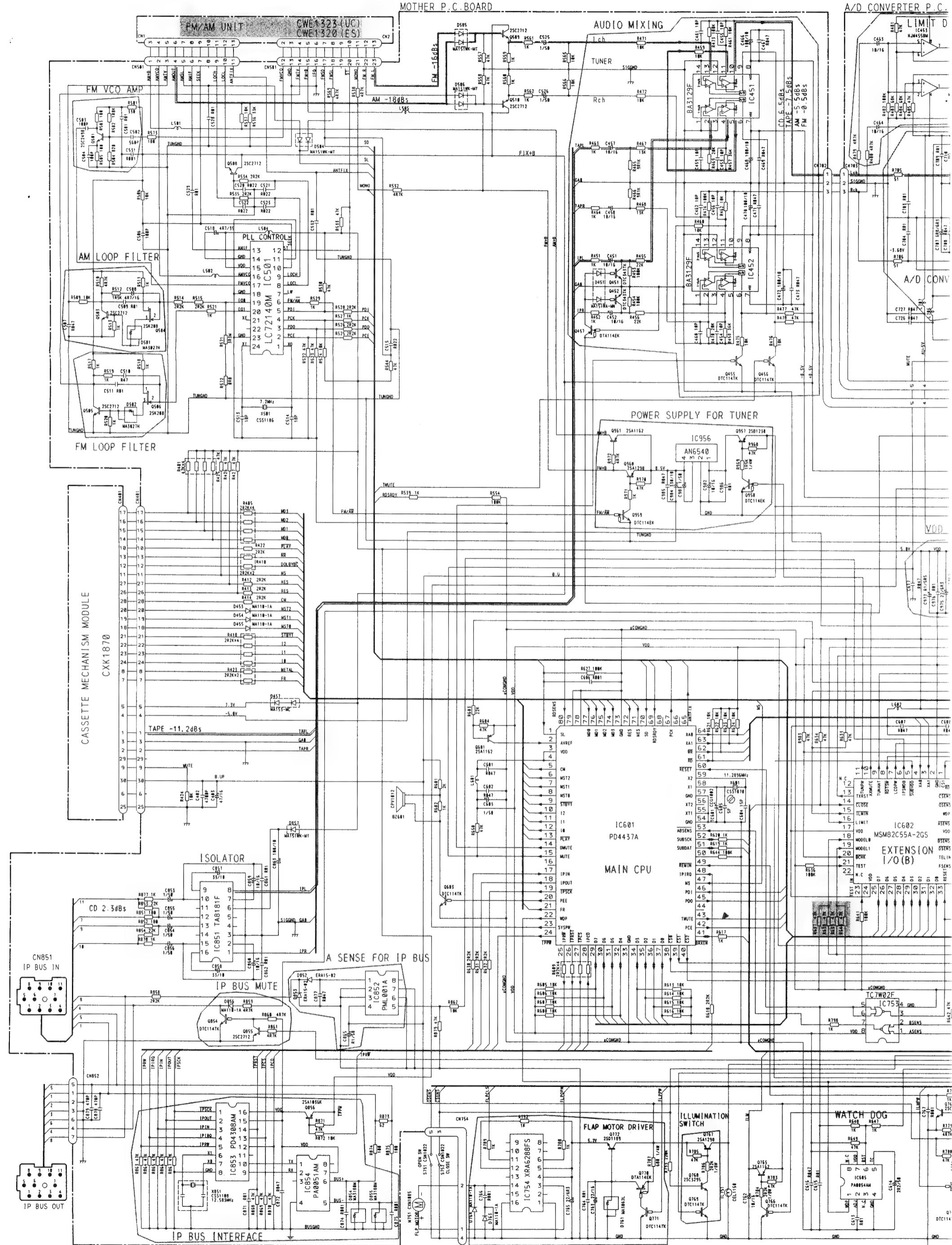


Fig. 19

## 6.2 AUDIO TUNER UNIT (UC,ES)

### ● Circuit Diagram



# CONVERTER P.C. BOARD

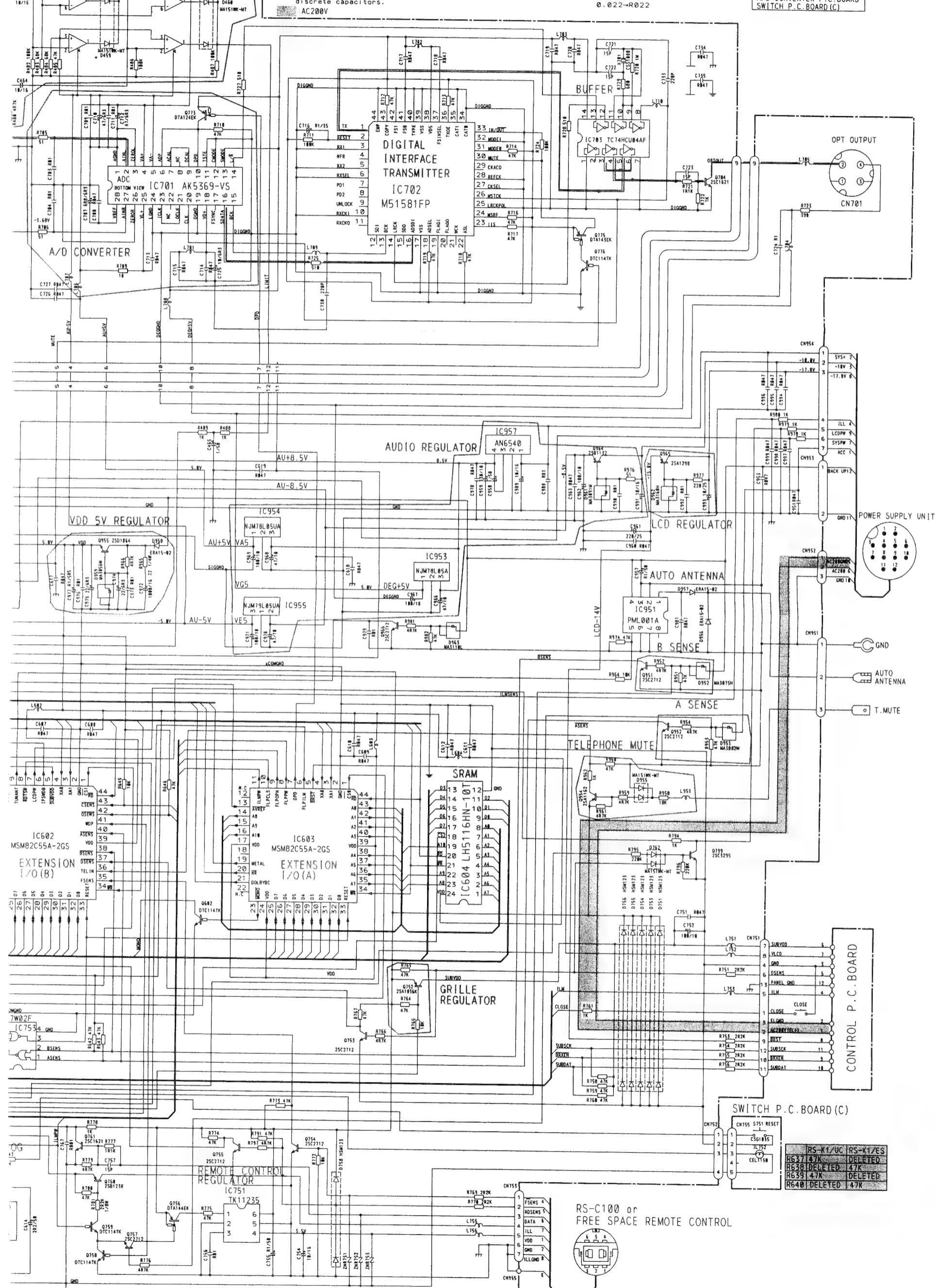
## NOTE :

□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.  
□ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

AC200V

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2-2R2  
0.022-R022

AUDIO TUNER UNIT(CWM3439)  
Consists of  
MOTHER P.C.B.  
A/D CONVERTER P.C.B.  
SWITCH P.C.B.(C)



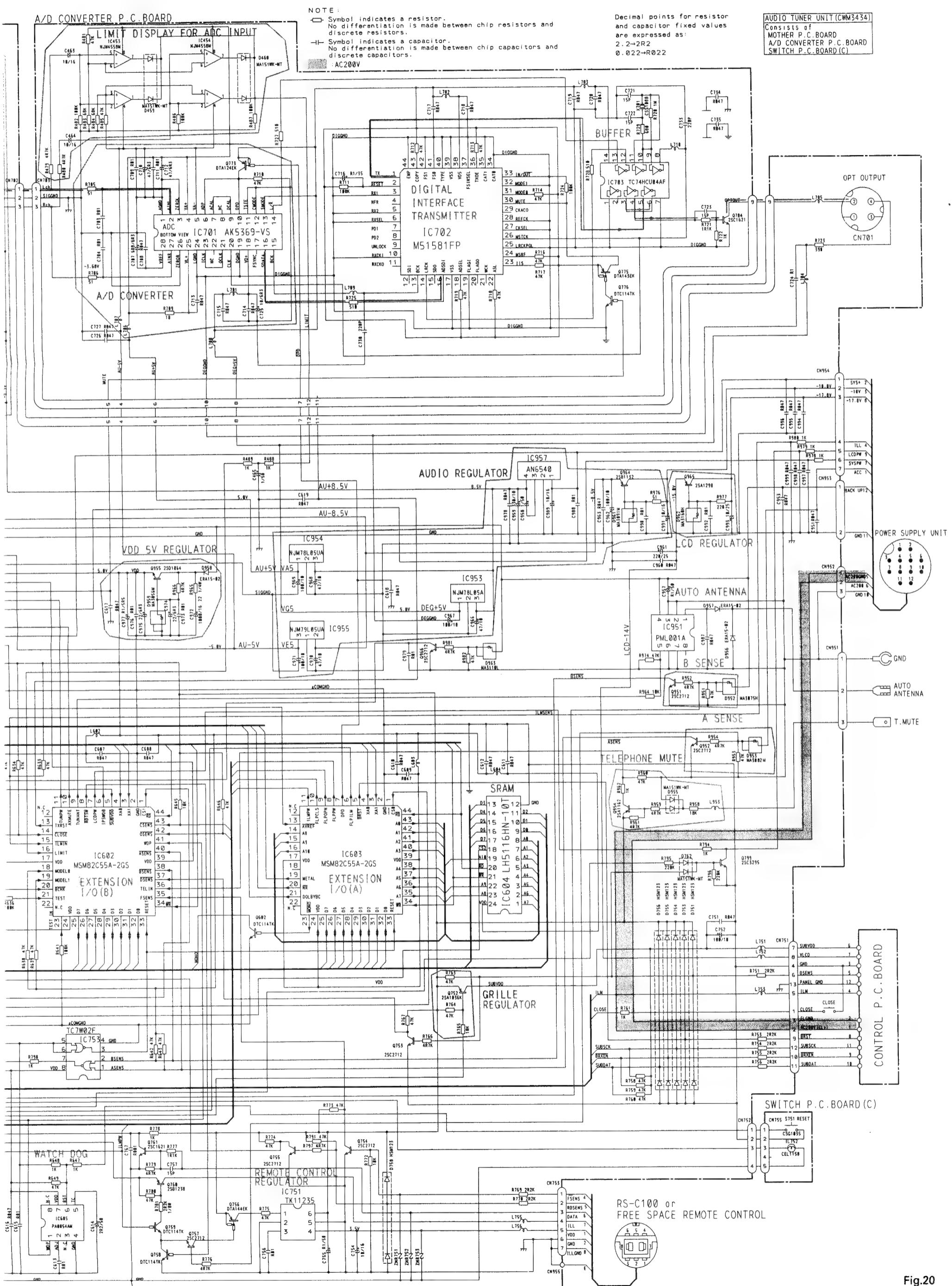
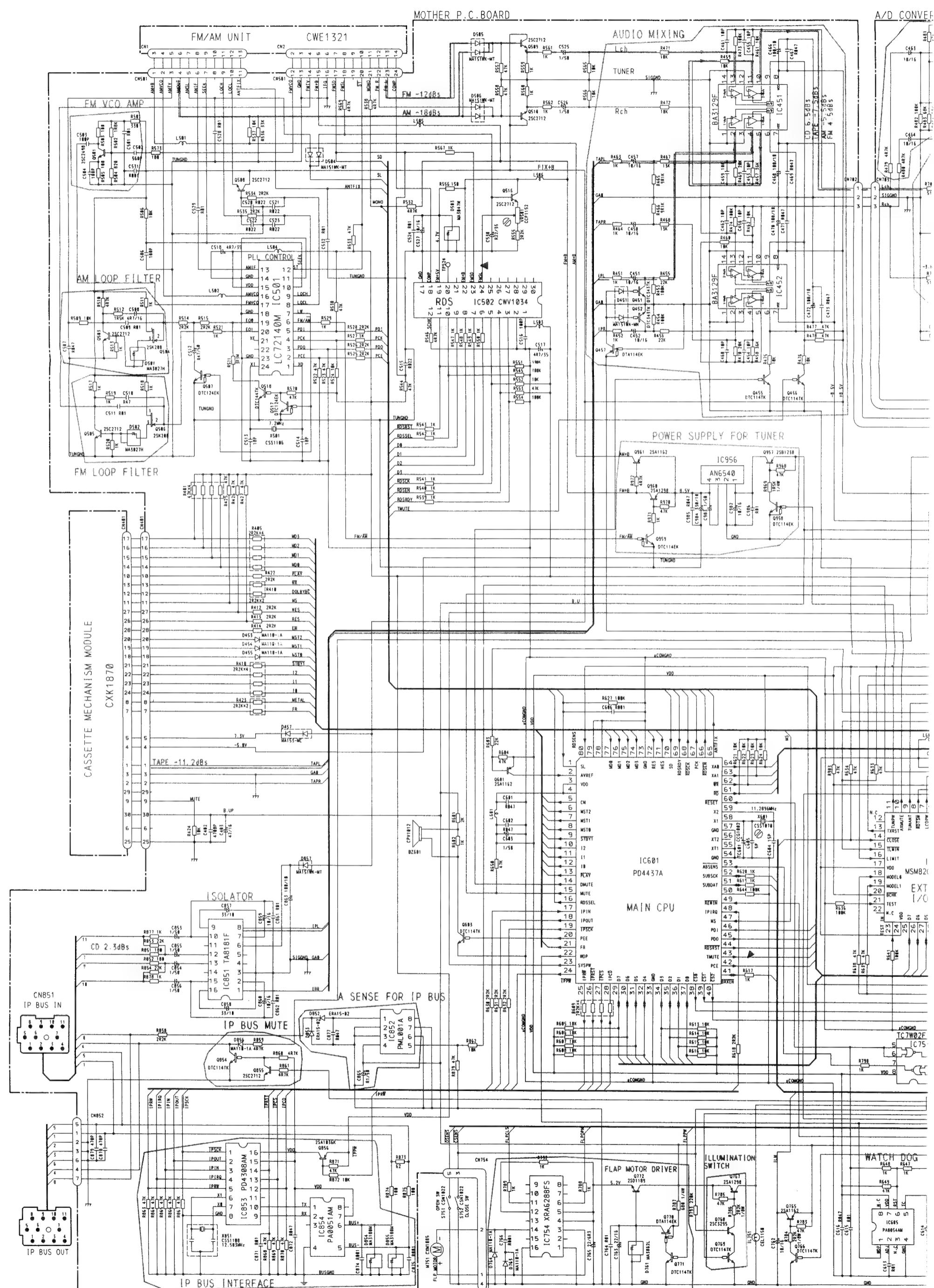


Fig.20

## ●Circuit Diagram



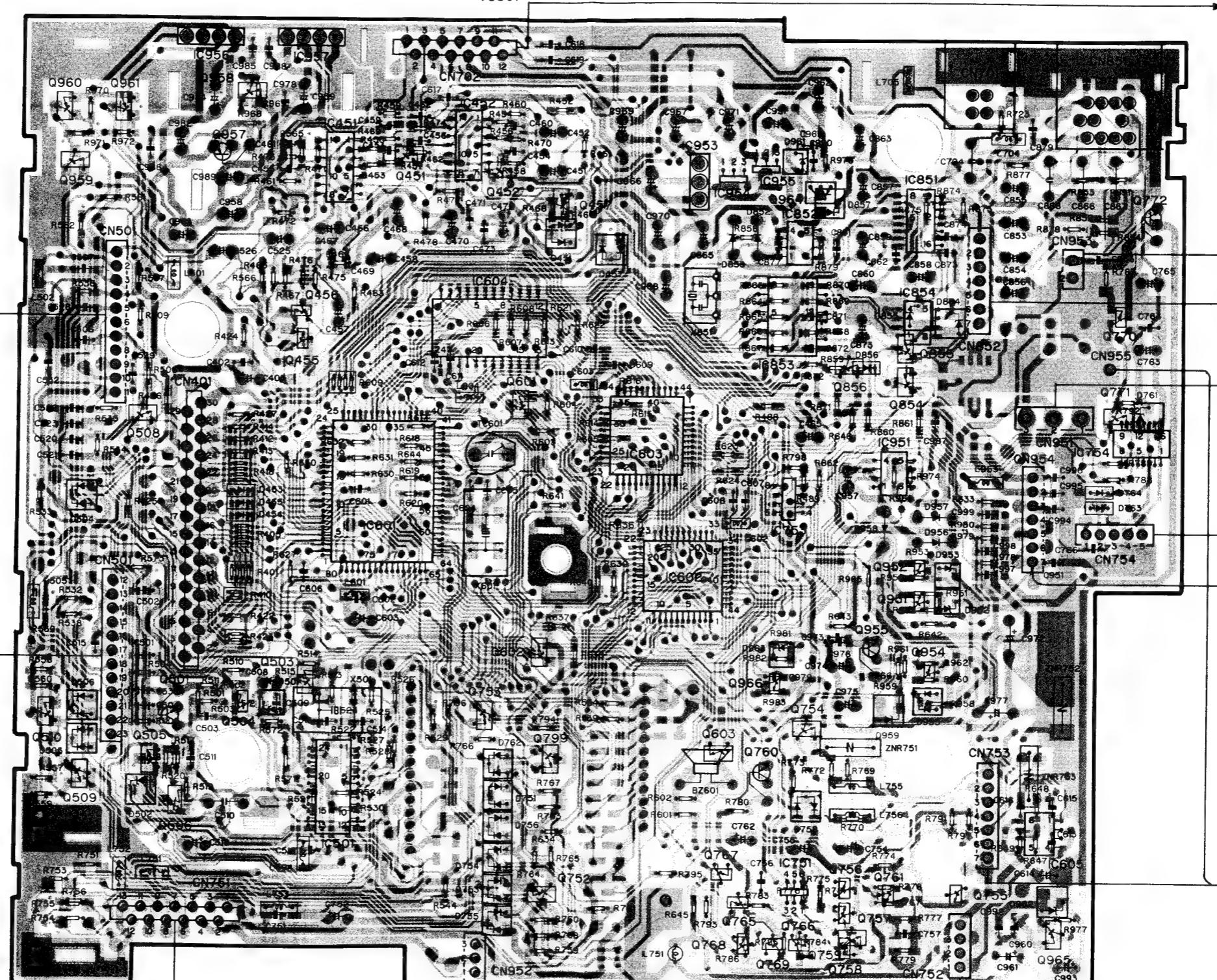


## MOTHER P.C. BOARD

Q960 Q961	IC956 Q456 IC957	Q457	Q964
Q959	Q508 Q501 Q957 Q503	IC452 Q452 Q602	IC955 IC852 Q856 IC851 Q855
IC, Q Q510	Q509 Q505 Q506 Q504	Q451 IC501 IC451 IC601	IC954 IC853 IC753 Q756 IC854 Q854
		Q753 Q752	IC953 Q767 Q966 Q754 Q757 IC951 Q952
			IC602 Q765 Q760 IC751 Q758 Q955 Q951
			IC603 Q603 Q768 Q769 Q766 Q759 Q761 Q954 Q755
			IC605 Q965 Q771 IC754
			Q772 Q770 Q771

ADJ

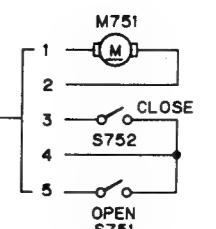
TC601

FM/AM UNIT  
CN1FM/AM UNIT  
CN2MOTHER P.C. BOARD  
CN702A/D CONVERTER  
P.C. BOARD  
CN703

POWER SUPPLY UNIT

IP BUS OUTPUT

CORD ASSY

FREE SPACE  
REMOTE CONTROLSWITCH P.C. BOARD  
CN755

**6.3 DRIVER P.C. BOARD**

## ● Connection Diagram

A

DRIVER P.C. BOARD

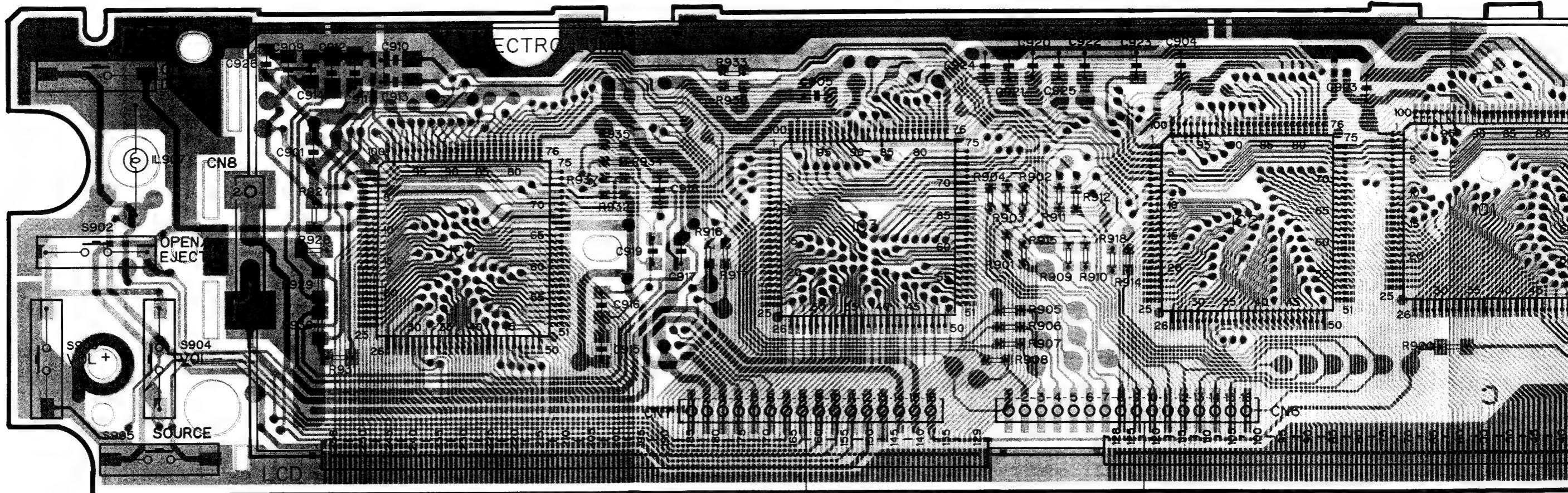
IC. Q

IC4

IC3

IC2

IC1

CONTROL P.C. BOARD  
CN902CONTROL P.C. BOARD  
CN903

D

A

IC3

IC2

IC1

IC5

IC903

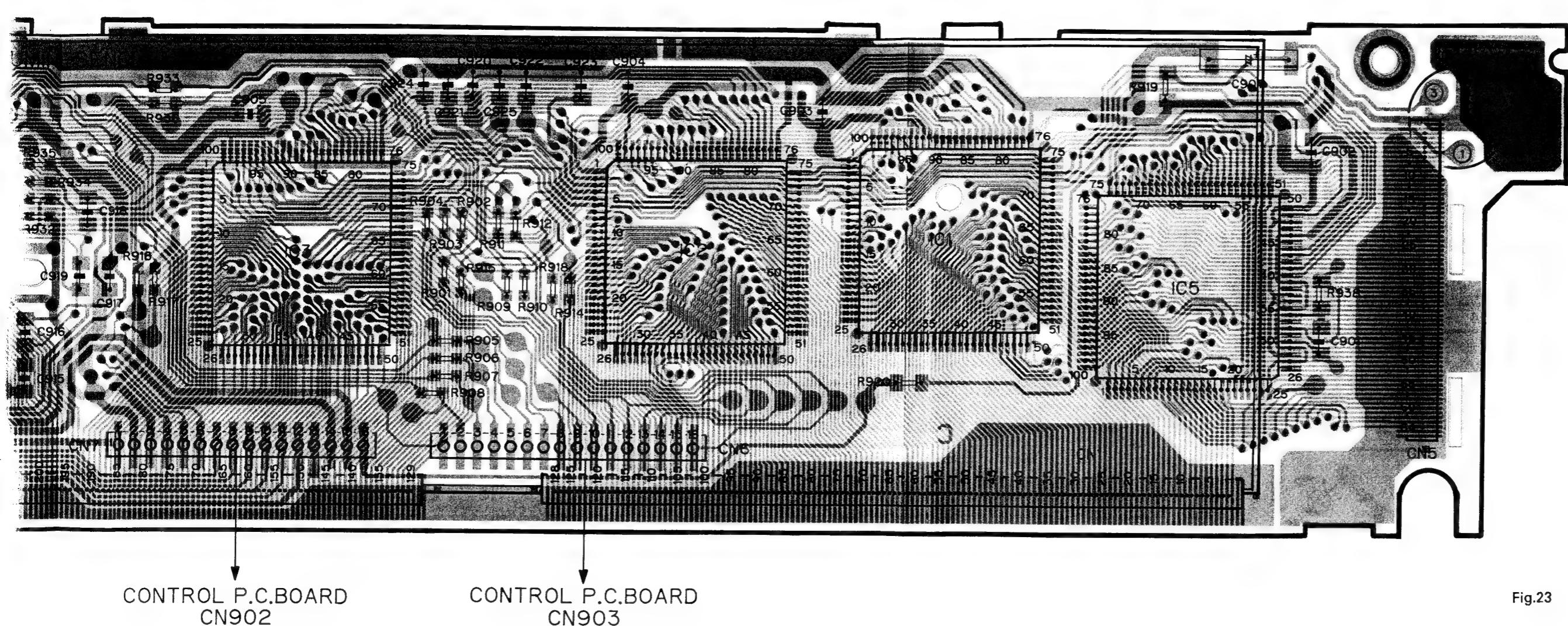


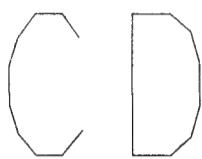
Fig.23

B

C

D

DT MATRIX (64X256)



202TF

ADDRESS 1

## DRIVER

### VIEW)

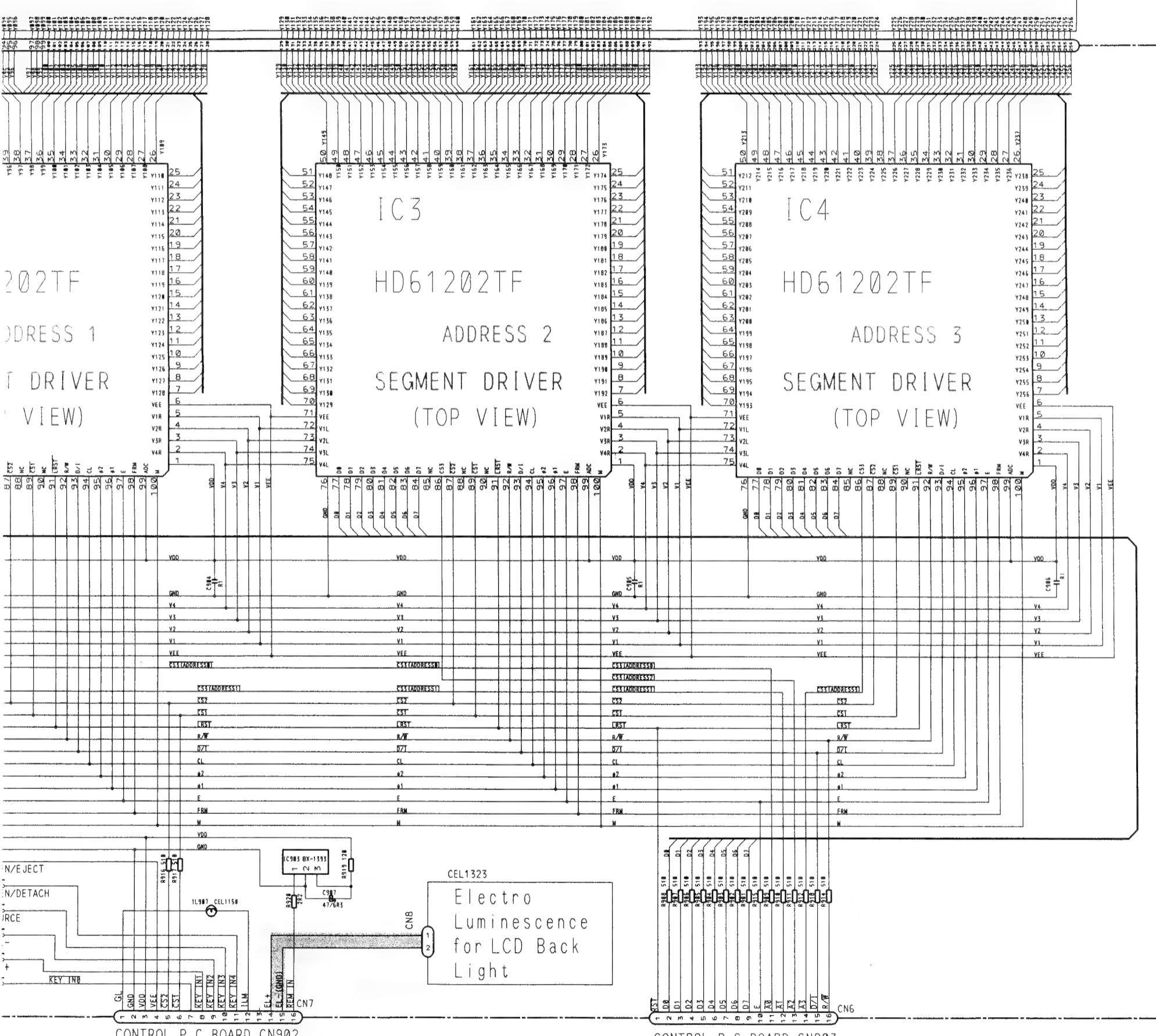
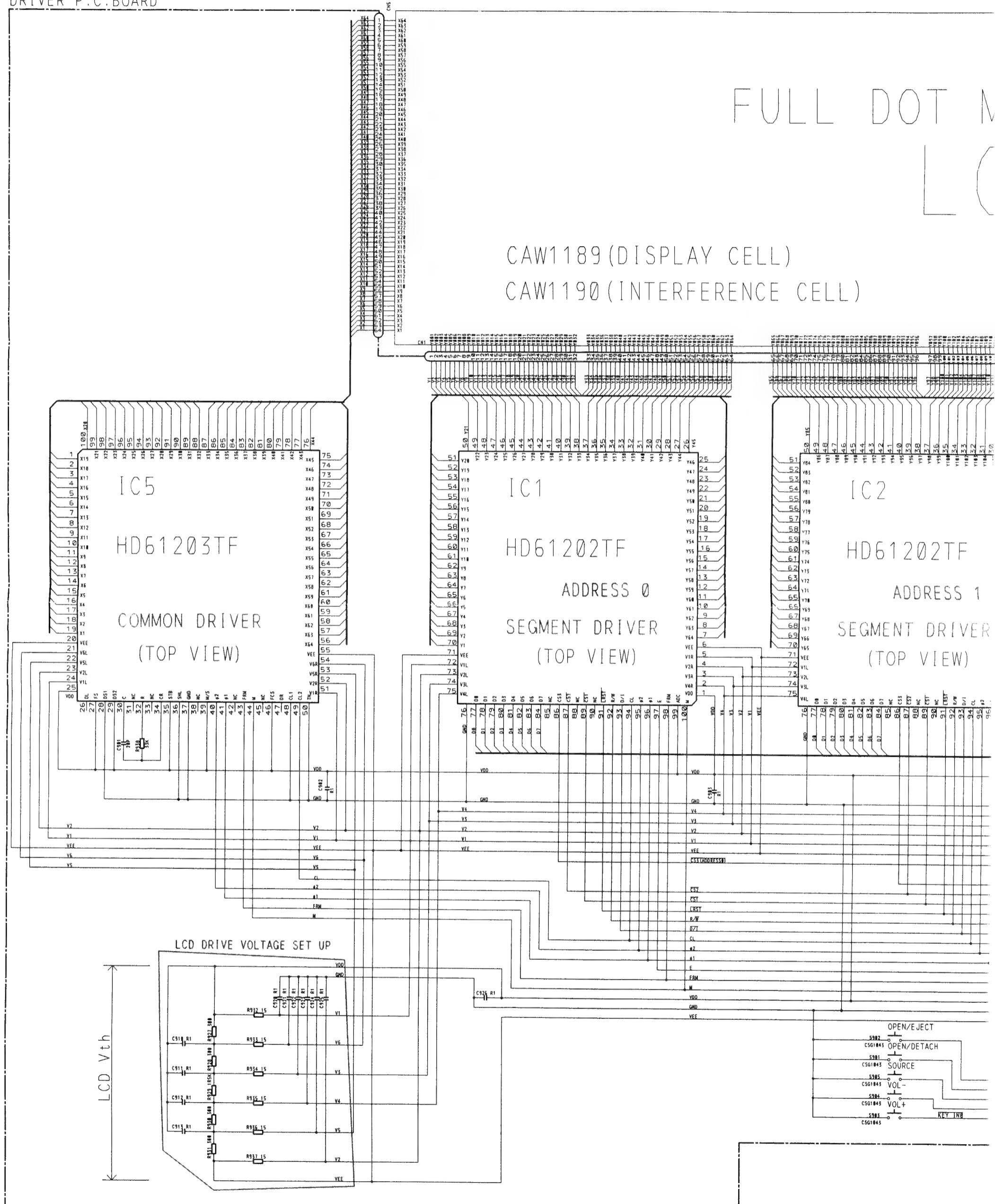


Fig. 24

## ●Circuit Diagram

### DRIVER P.C.B. BOARD

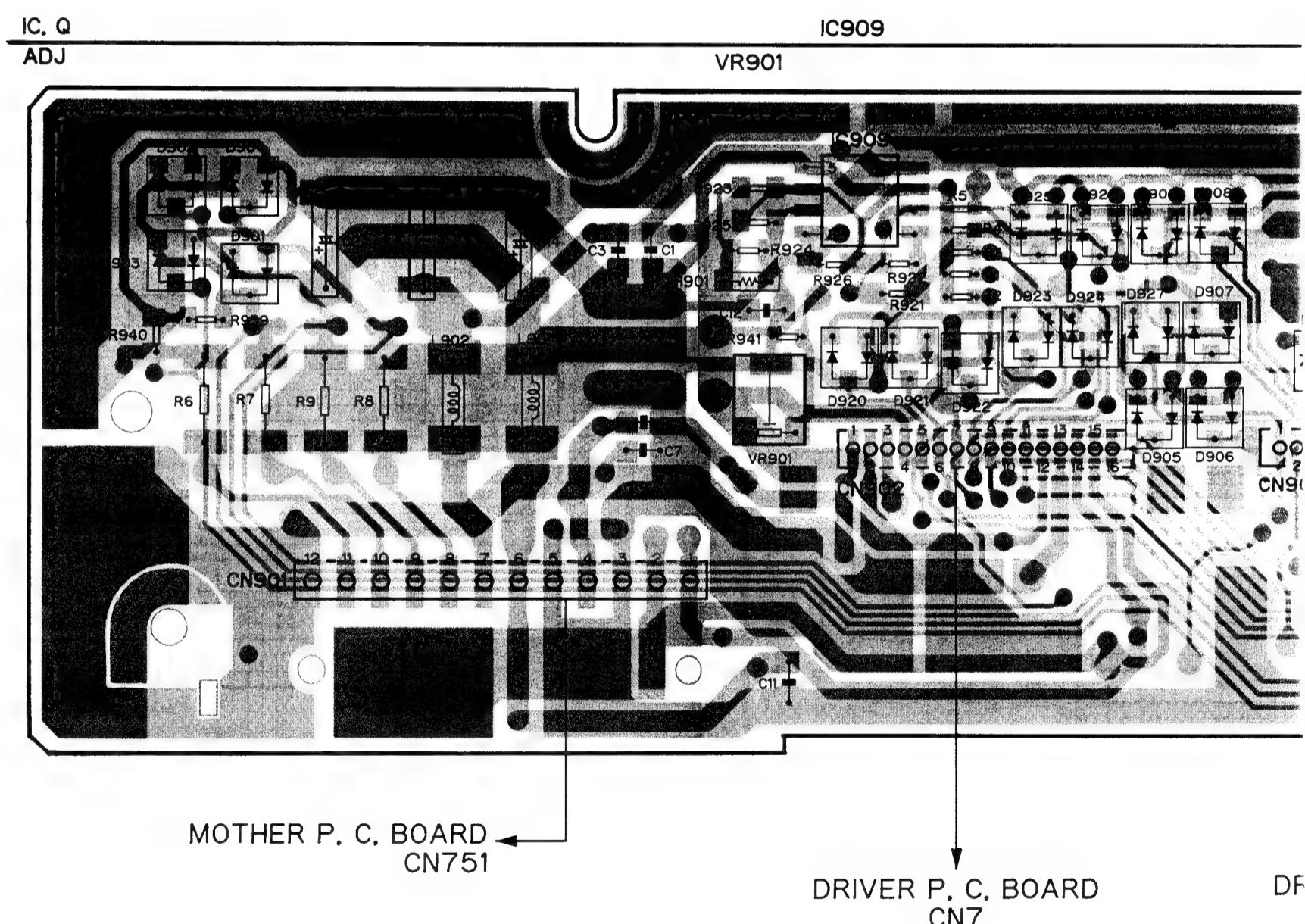


1 2 3 4 5

**6.4 CONTROL P.C. BOARD****● Connection Diagram**

A

CONTROL P.C. BOARD



D

1 2 3 4 5

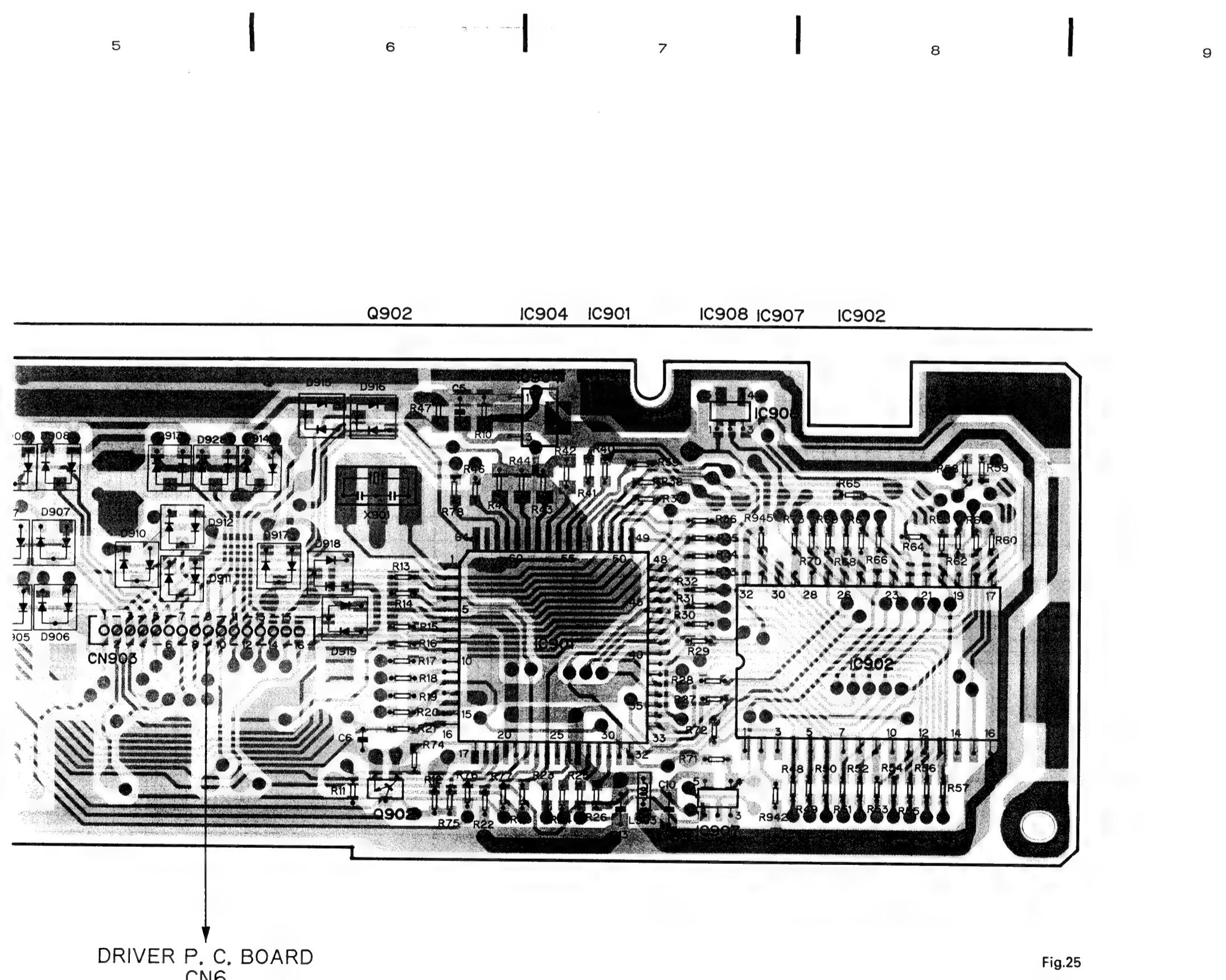
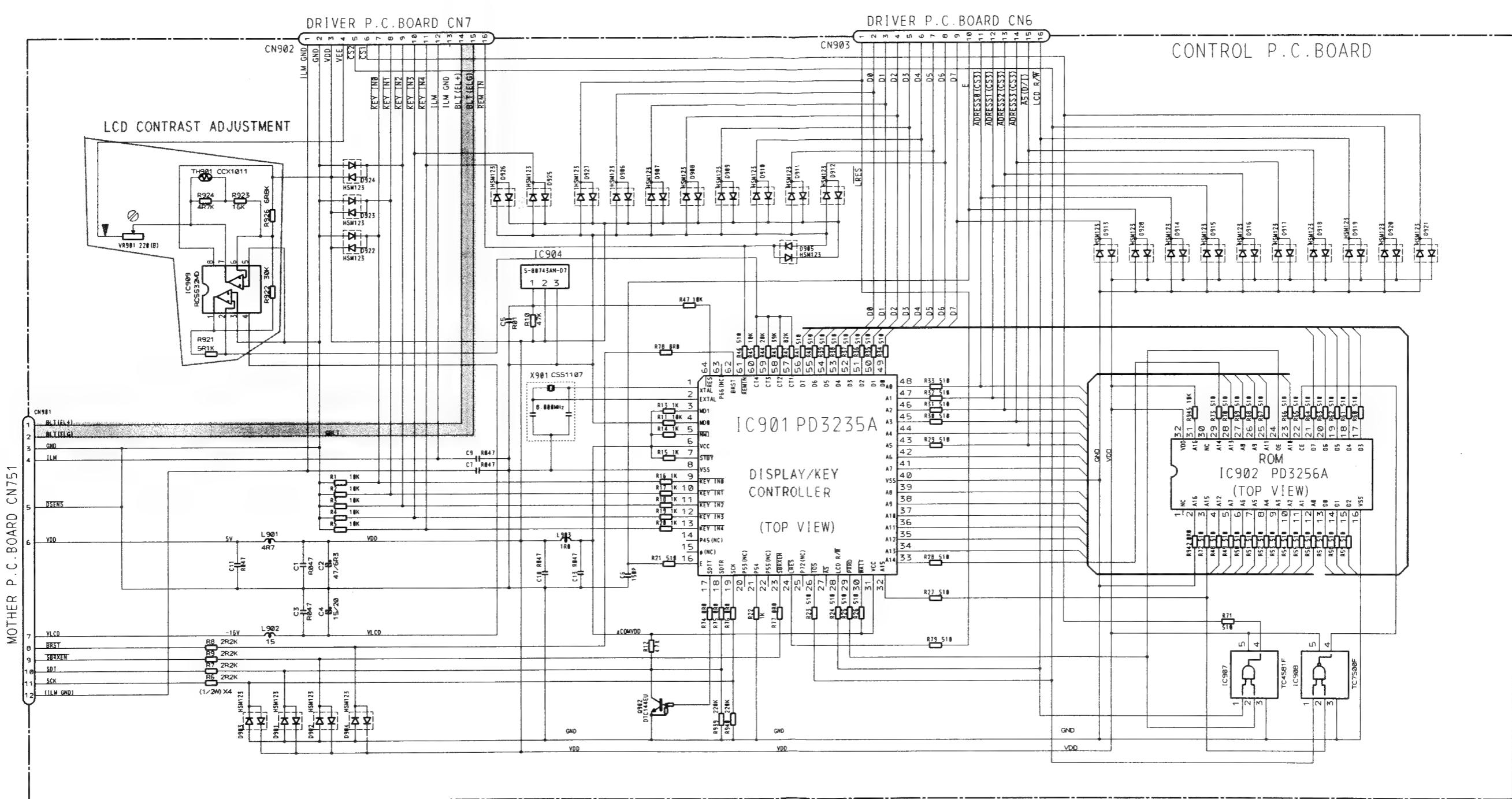


Fig.25

## ● Circuit Diagram



**NOTE**

■ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

—II— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistors and capacitor fixed values are expressed as:

DISPLAY UNIT  
Consists of  
CONTROL P.C. BO  
DRIVER P.C. BOA

AC200V

Fig.26

## 6.5 POWER SUPPLY UNIT

### ● Circuit Diagram

A

A

## POWER SUPPLY UNIT(CWR1045)

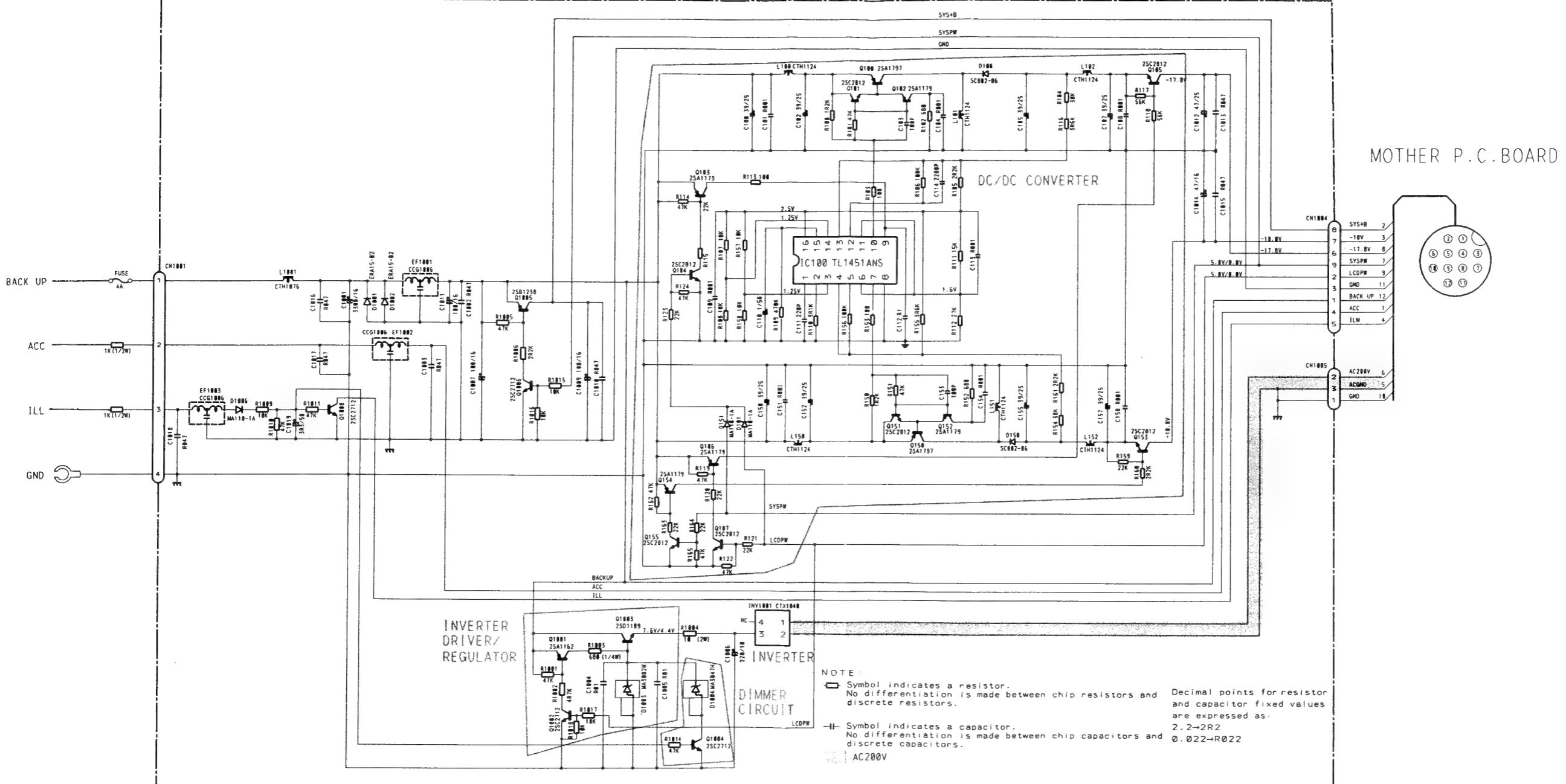


Fig.27

## ●Connection Diagram

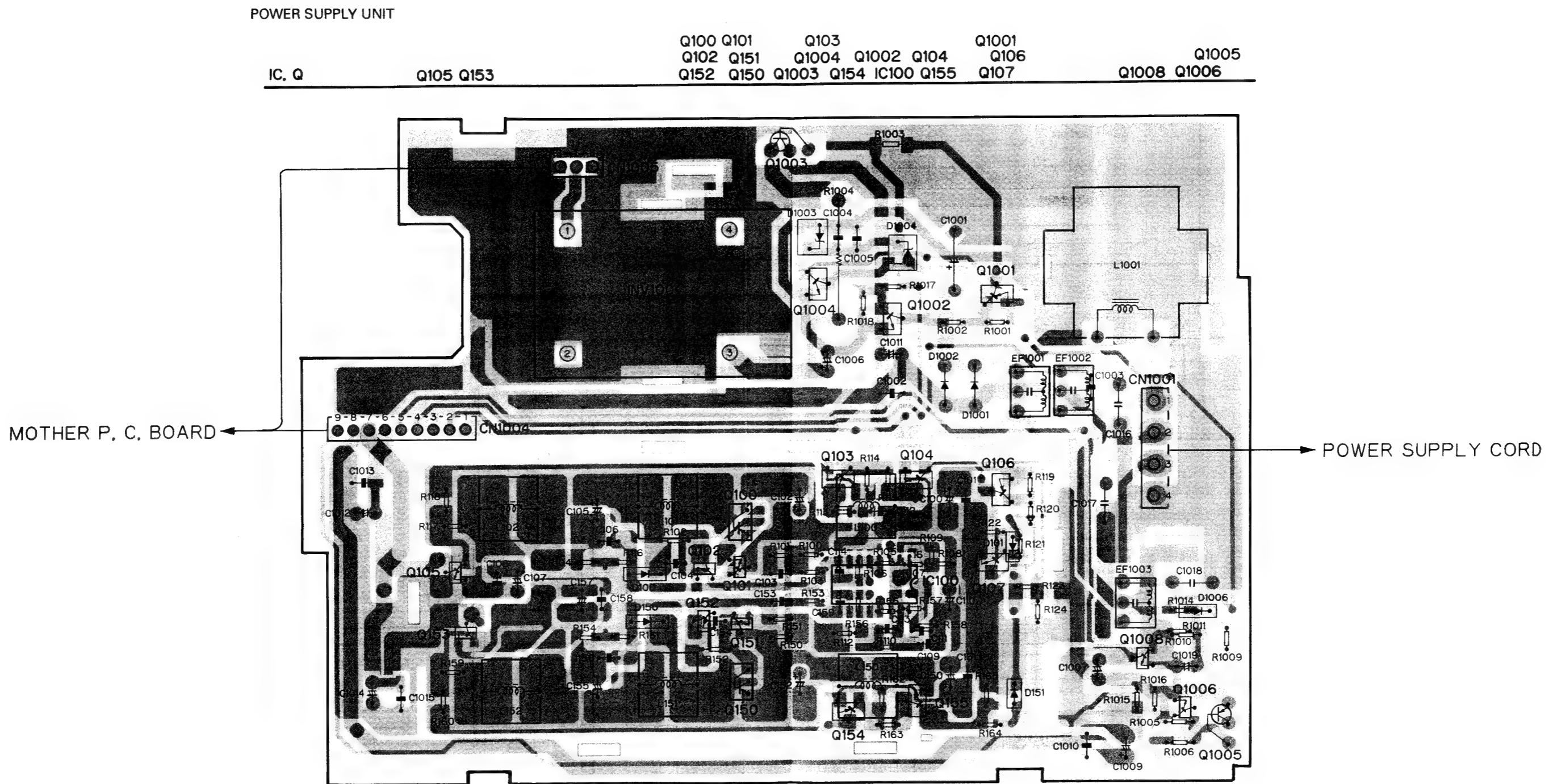


Fig.21

## 6.6 CASSETTE MECHANISM MODULE

## ● Circuit Diagram

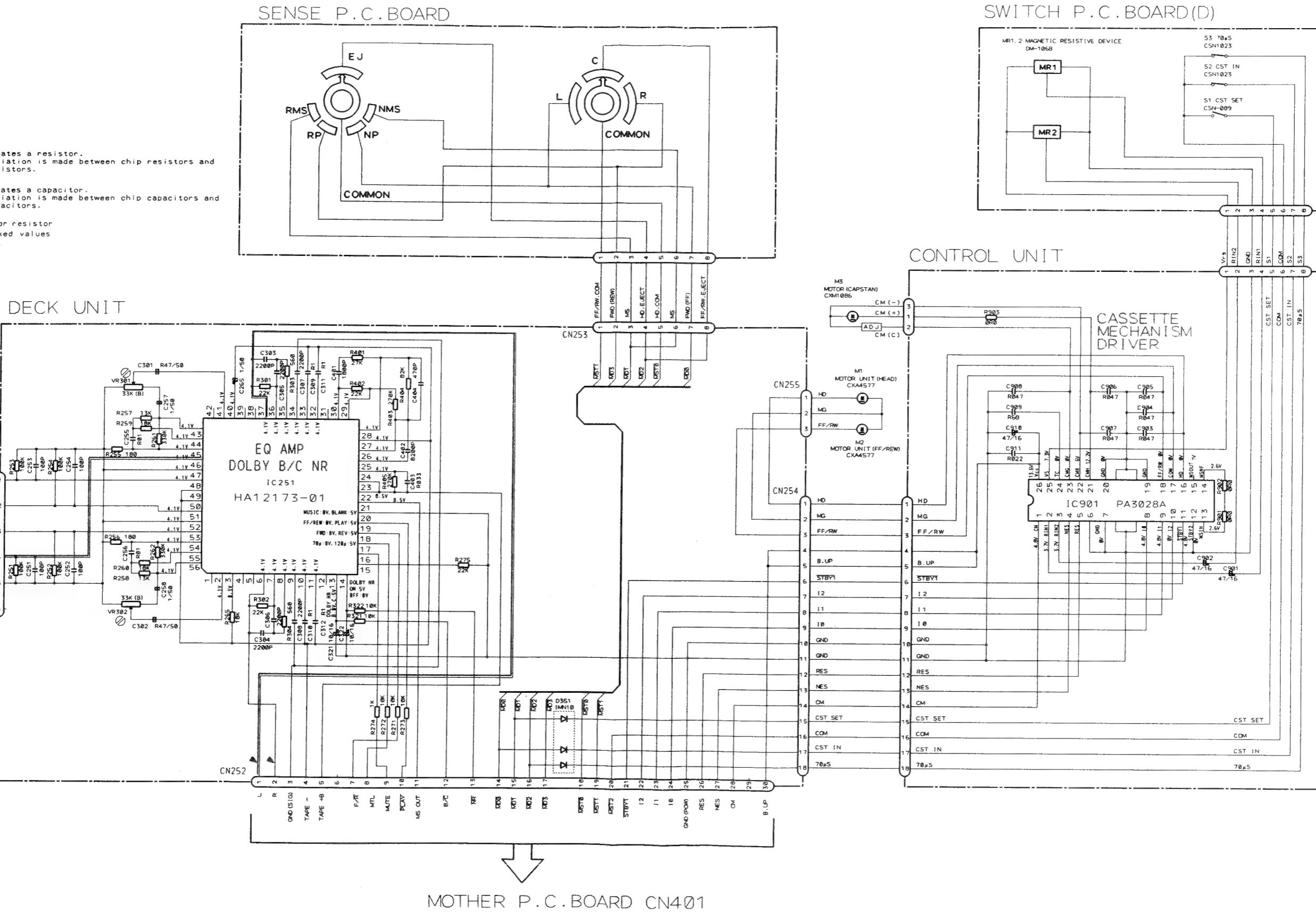


Fig.29

## ● Connection Diagram

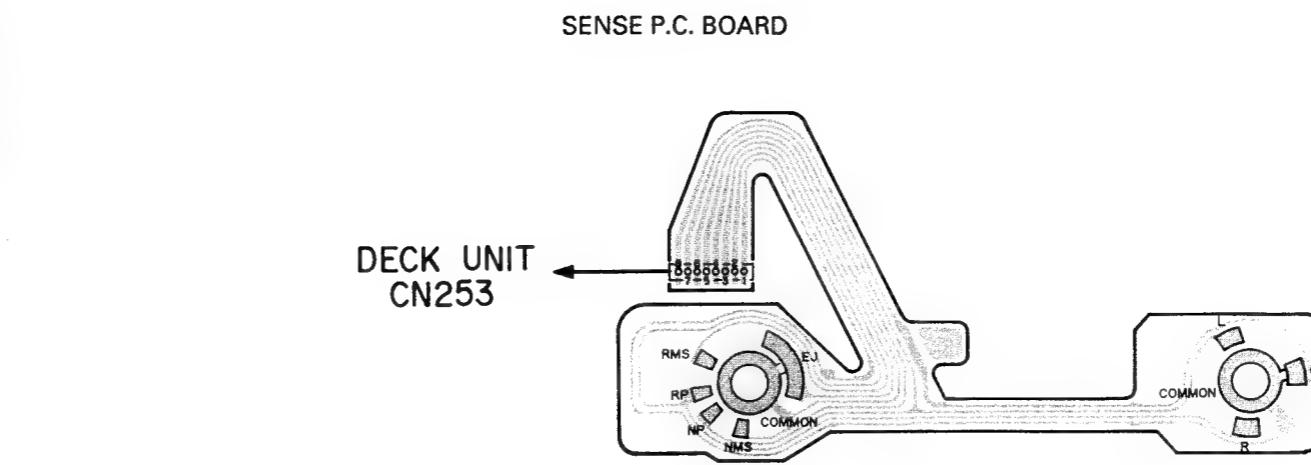
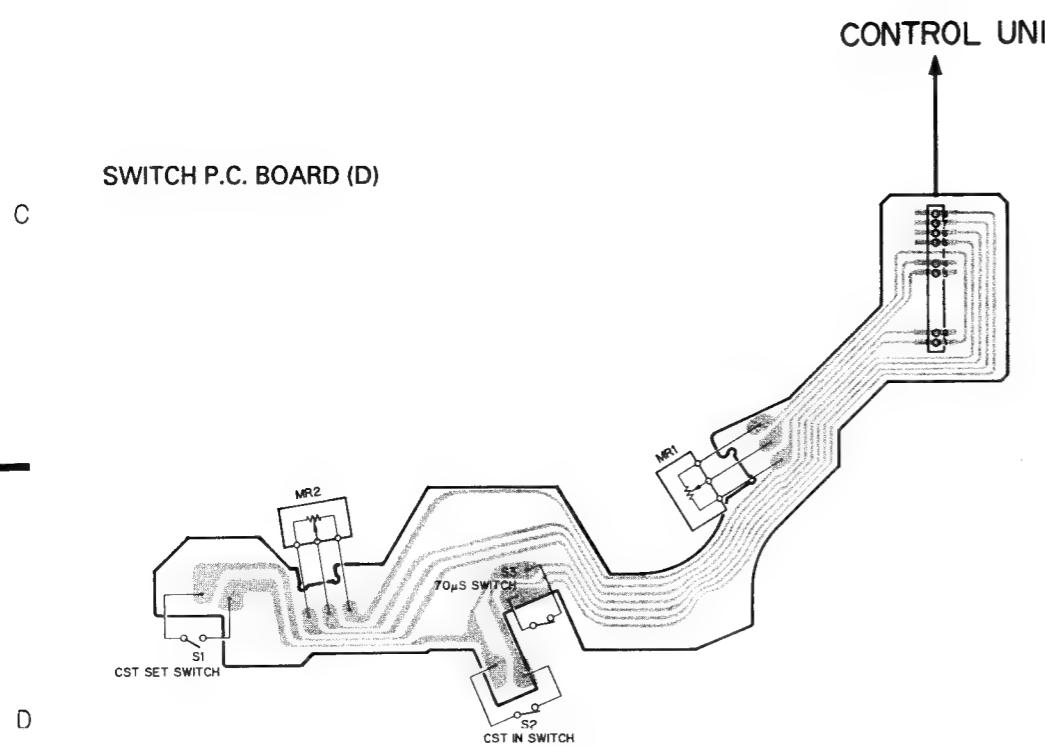
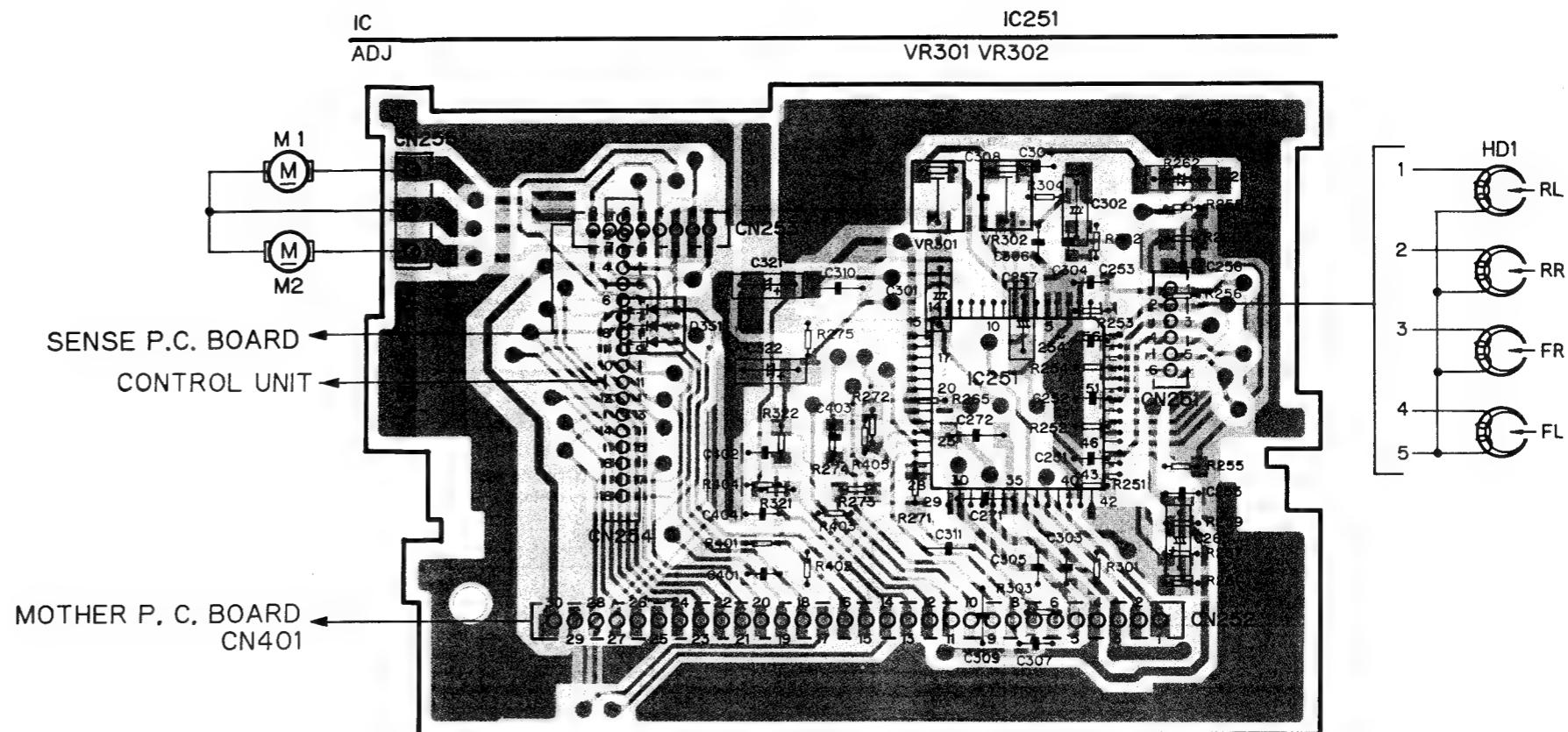
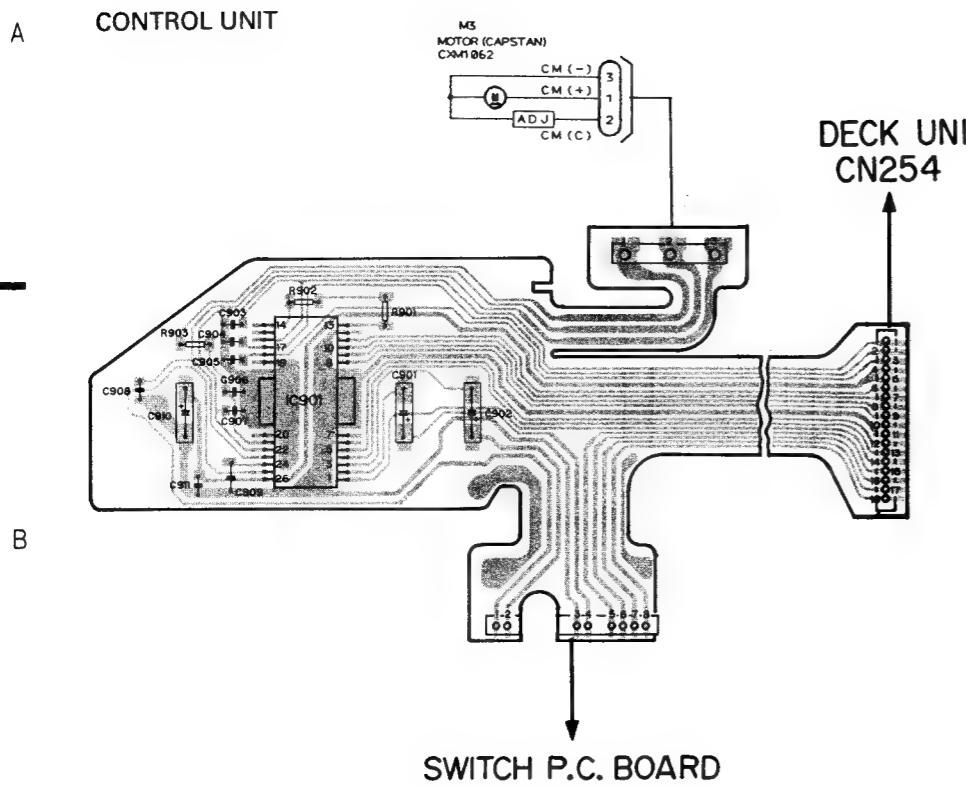


Fig.30

## 6.7 FREE SPACE REMOTE CONTROL

## ●Circuit Diagram

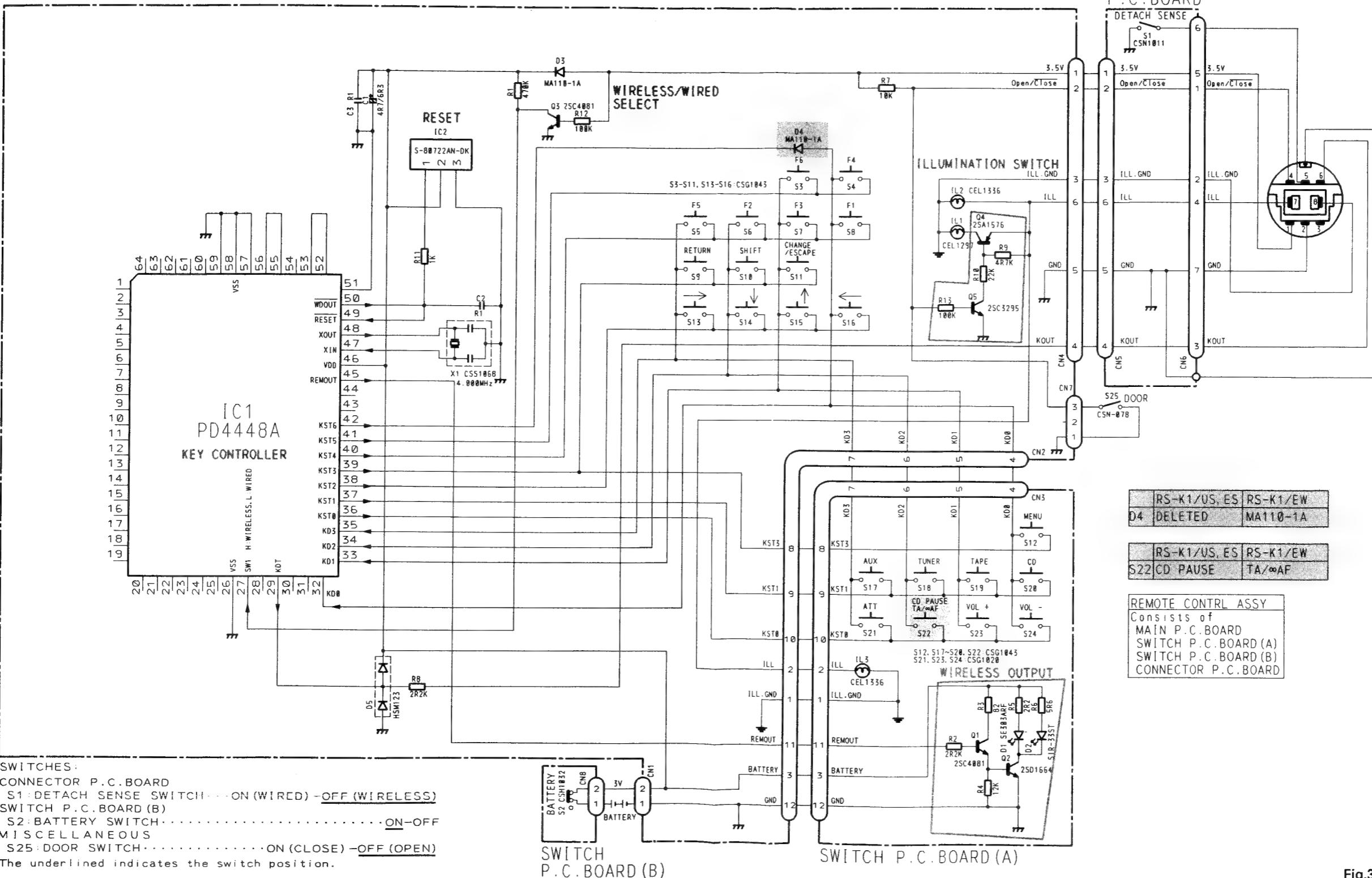
## NOTE:

— Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2 → 2R2  
0.022 → R022

## MAIN P.C.BORAD



1

2

3

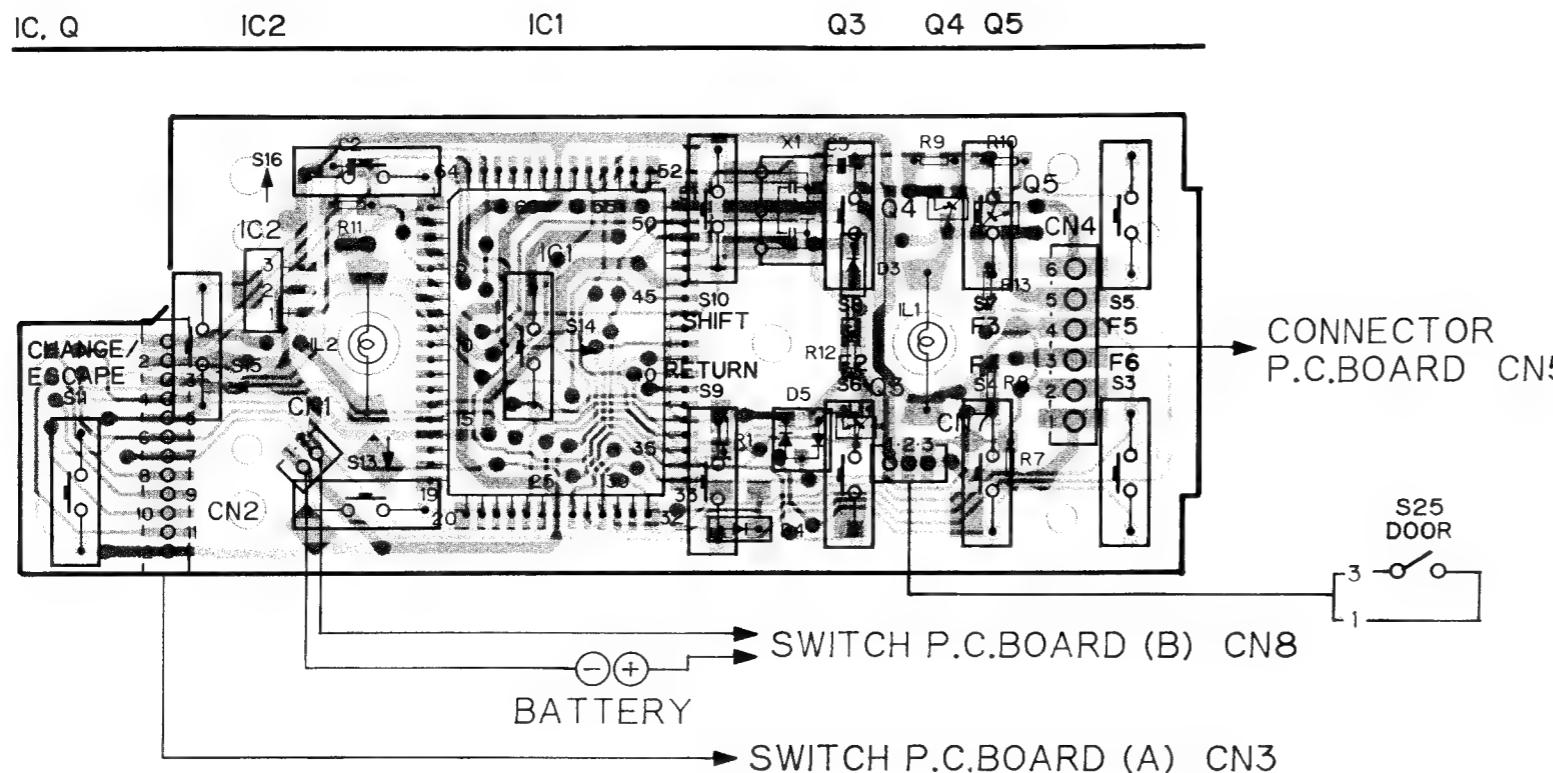
4

5

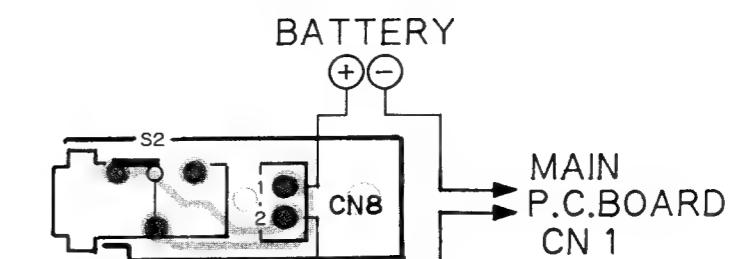
6

## ● Connection Diagram

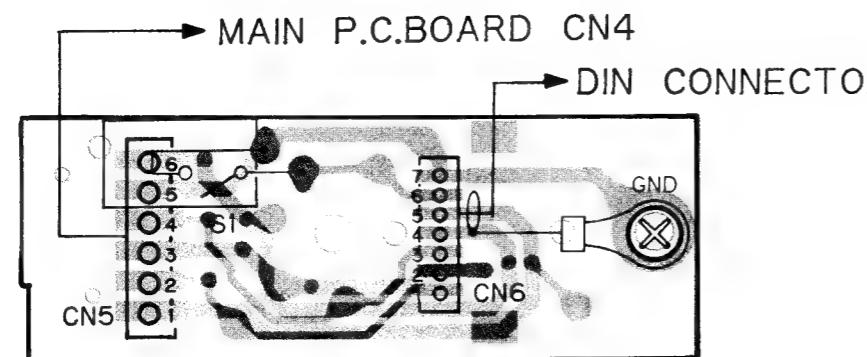
MAIN P.C. BOARD



SWITCH P.C. BOARD (B)



CONNECTOR P.C. BOARD



SWITCH P.C. BOARD (A)

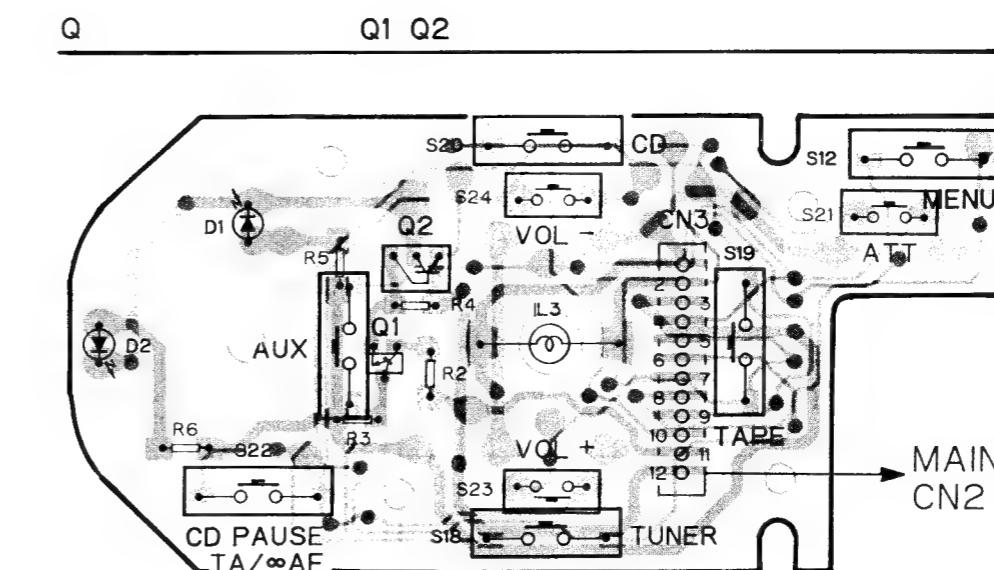


Fig.32

1

2

3

69

4

5

6

70

## 6.8 FM/AM UNIT (UC)

## ● Circuit Diagram

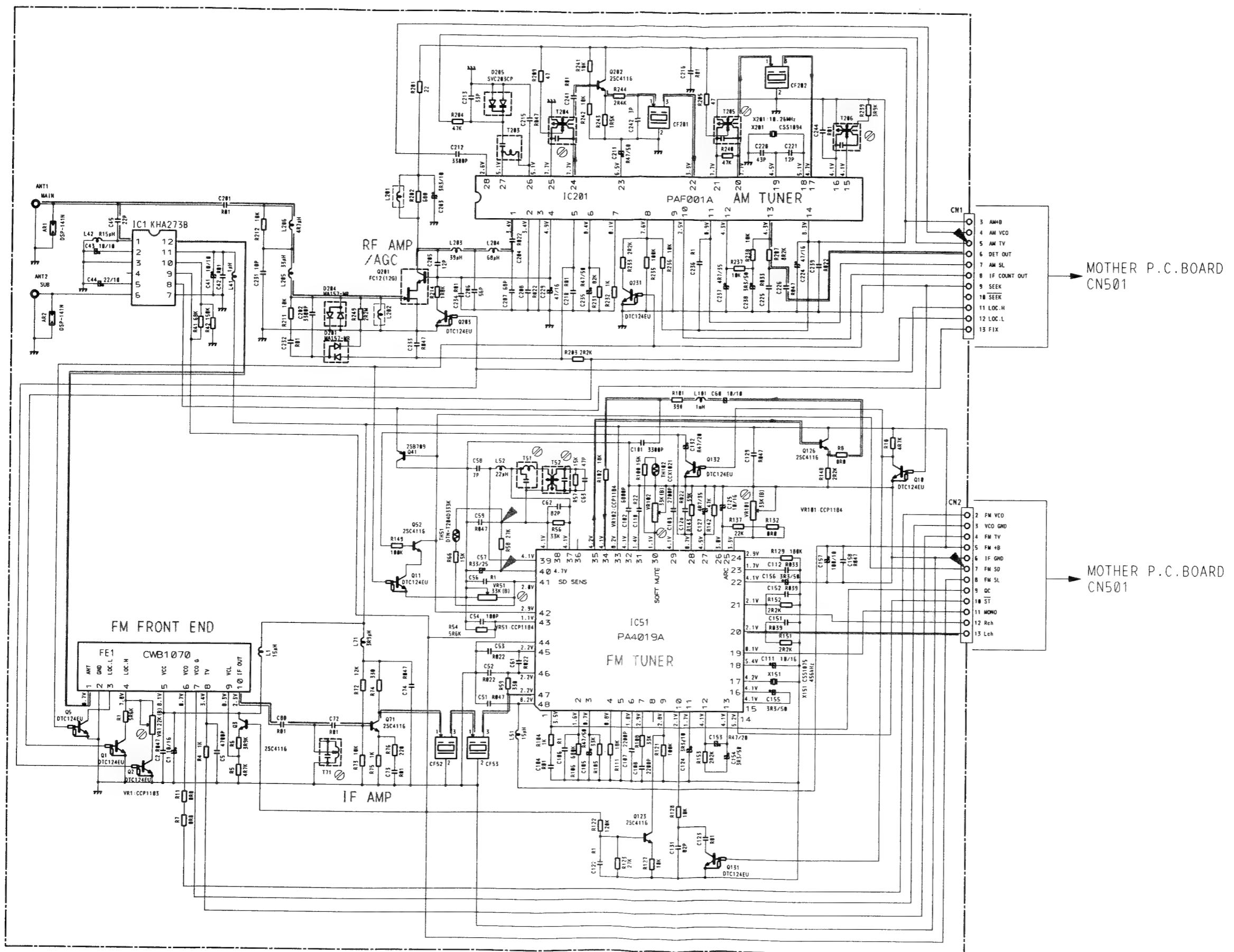


Fig.33

## ●Connection Diagram

FM/AM UNIT

A

IC, Q	Q231	Q202	IC201	Q201	IC1	Q203	Q41	Q1 Q5	Q2	Q123	Q3	Q10 Q132	Q52	Q71	Q126	IC51			
ADJ	T206	T205		T204											T71	T51	T52	VR102	VR101

B

C

D

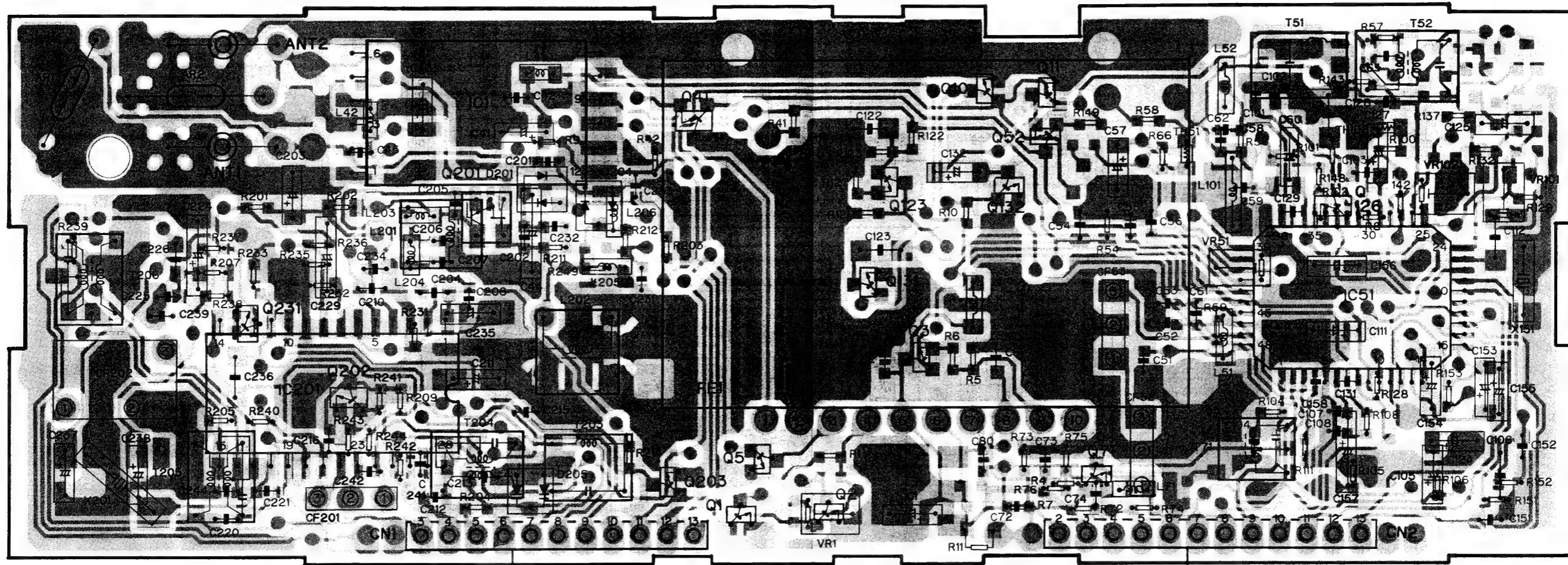
MOTHER P.C. BOARD  
CN501MOTHER P.C. BOARD  
CN501

Fig.34

## 6.9 FM/AM UNIT (EW)

## ● Circuit Diagram

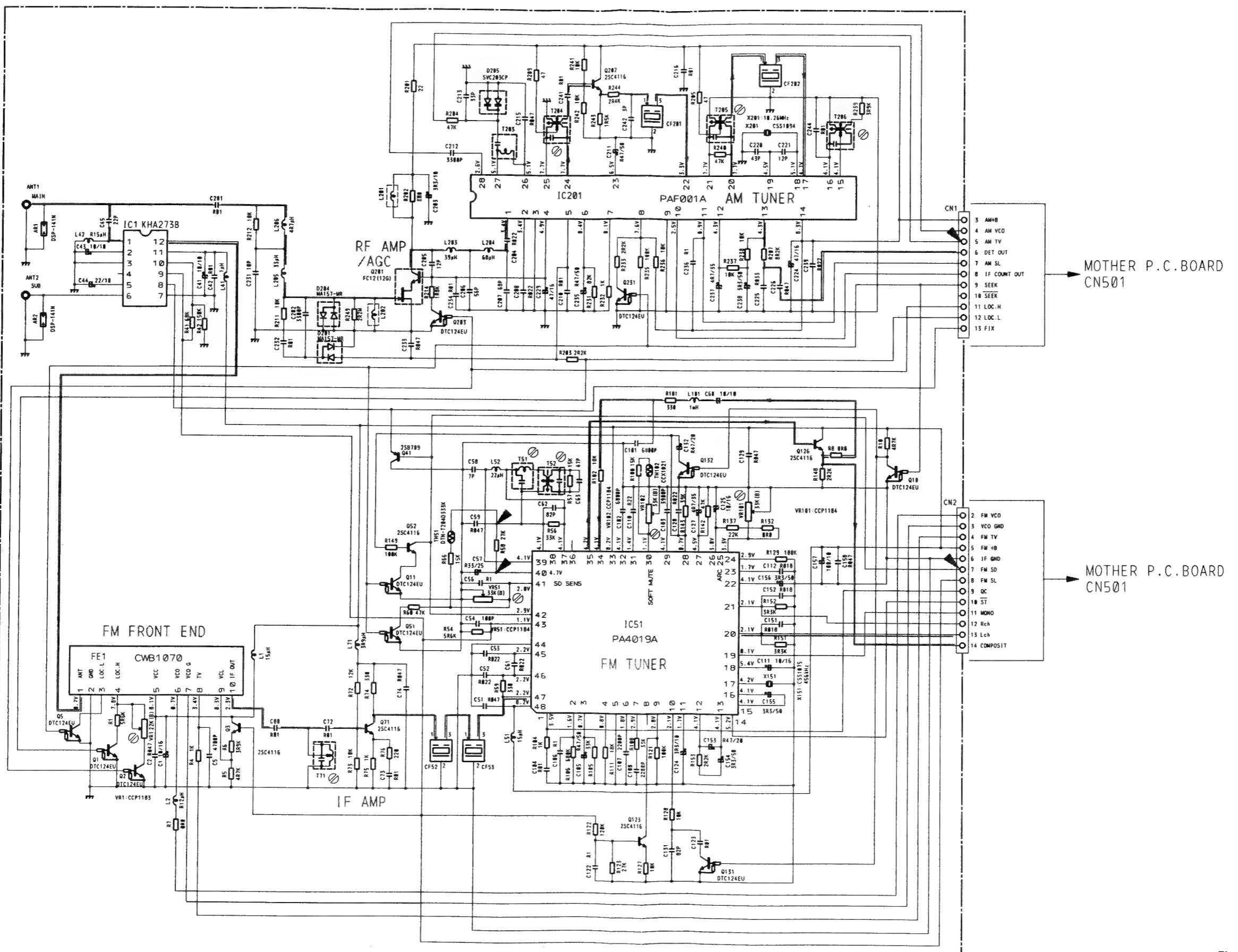


Fig.35

## ●Connection Diagram

A FM/AM UNIT

A

IC, Q	Q231	Q202	IC201	Q201	IC1	Q203	Q41	Q1 Q5	Q2	Q131	Q11 Q51	Q10 Q132 Q52	Q71	Q126	IC51
ADJ	T206	T205		T204										T71	T51

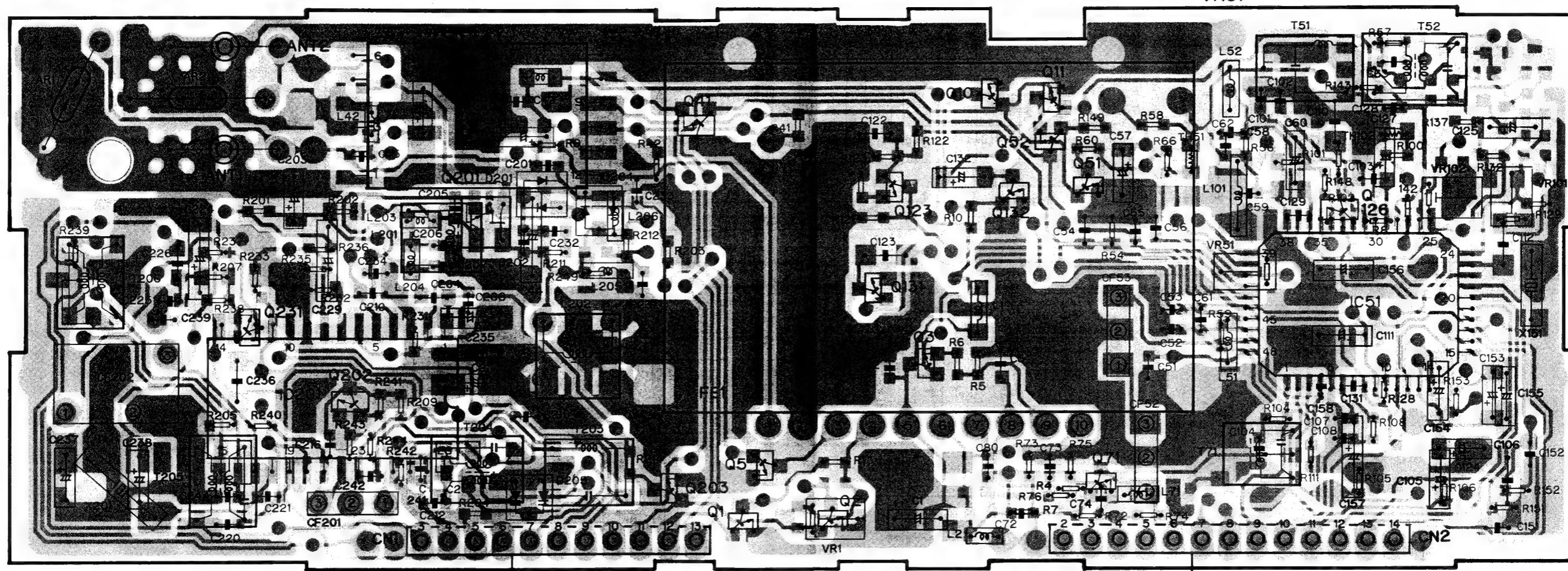
MOTHER P.C. BOARD  
CN501MOTHER P.C. BOARD  
CN501

Fig.16

## 6.10 FM/AM UNIT (ES)

## ● Circuit Diagram

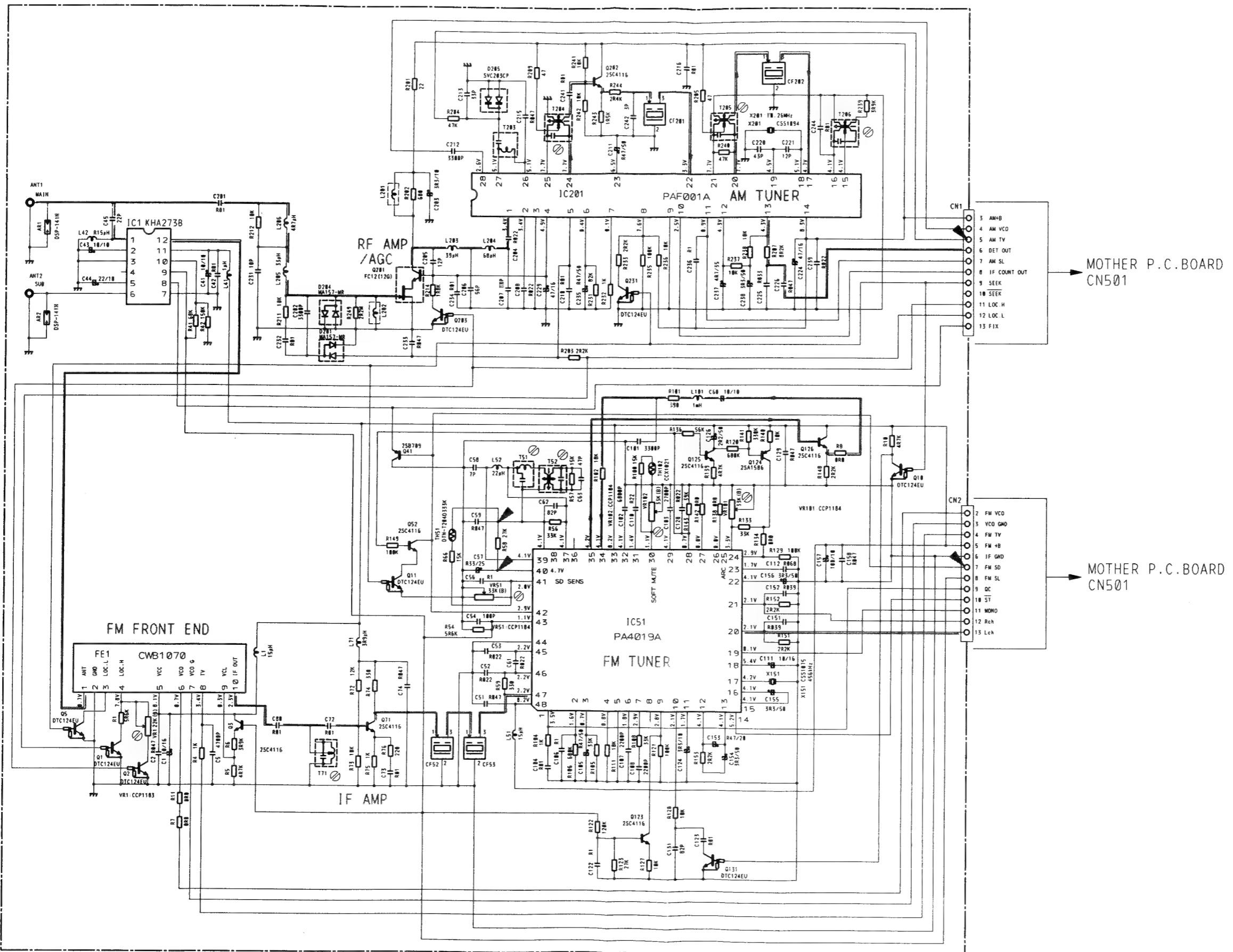


Fig.37

## ●Connection Diagram

A FM/AM UNIT

A

IC, Q	Q231	Q202	IC201	Q201	IC1	Q203	Q41	Q1 Q5	Q2	Q123 Q3	Q10	Q131	Q11	Q52	Q71	Q126	IC51	Q124	Q125	
ADJ	T206	T205		T204												T71	T51	T52	VR102	VR101

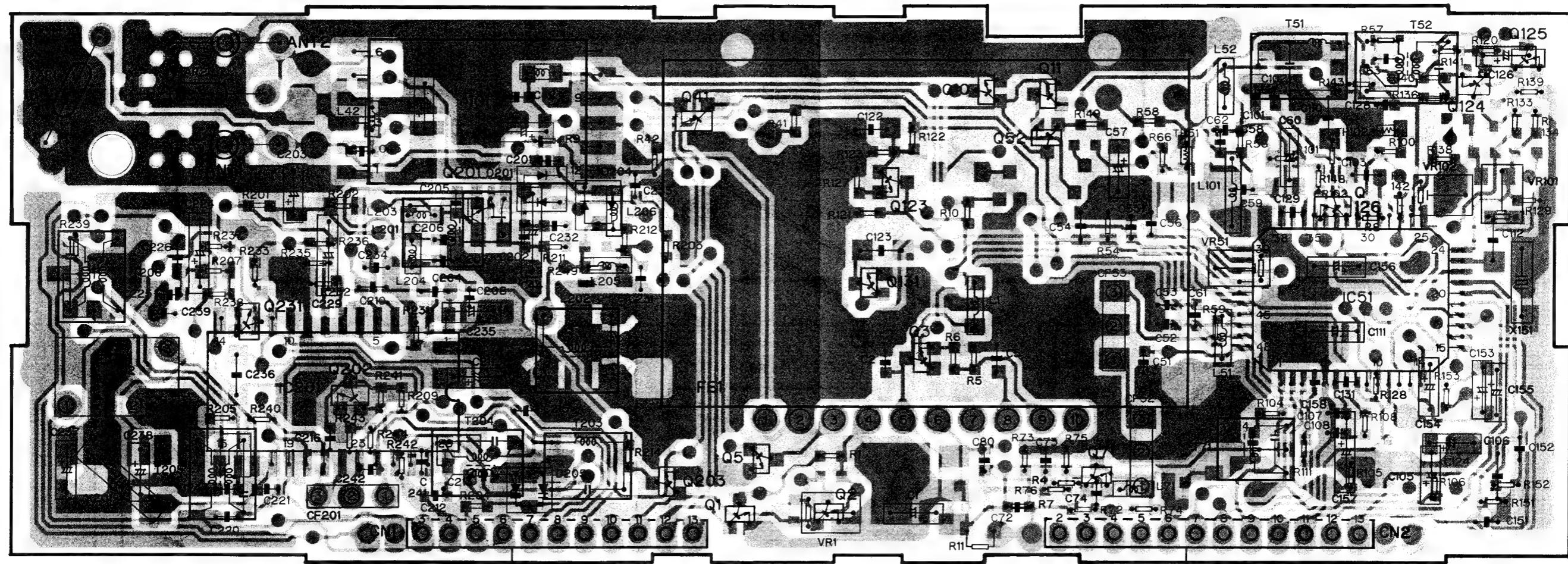
MOTHER P.C. BOARD  
CN501MOTHER P.C. BOARD  
CN501

Fig.38

## 7. EXPLODED VIEW (1)

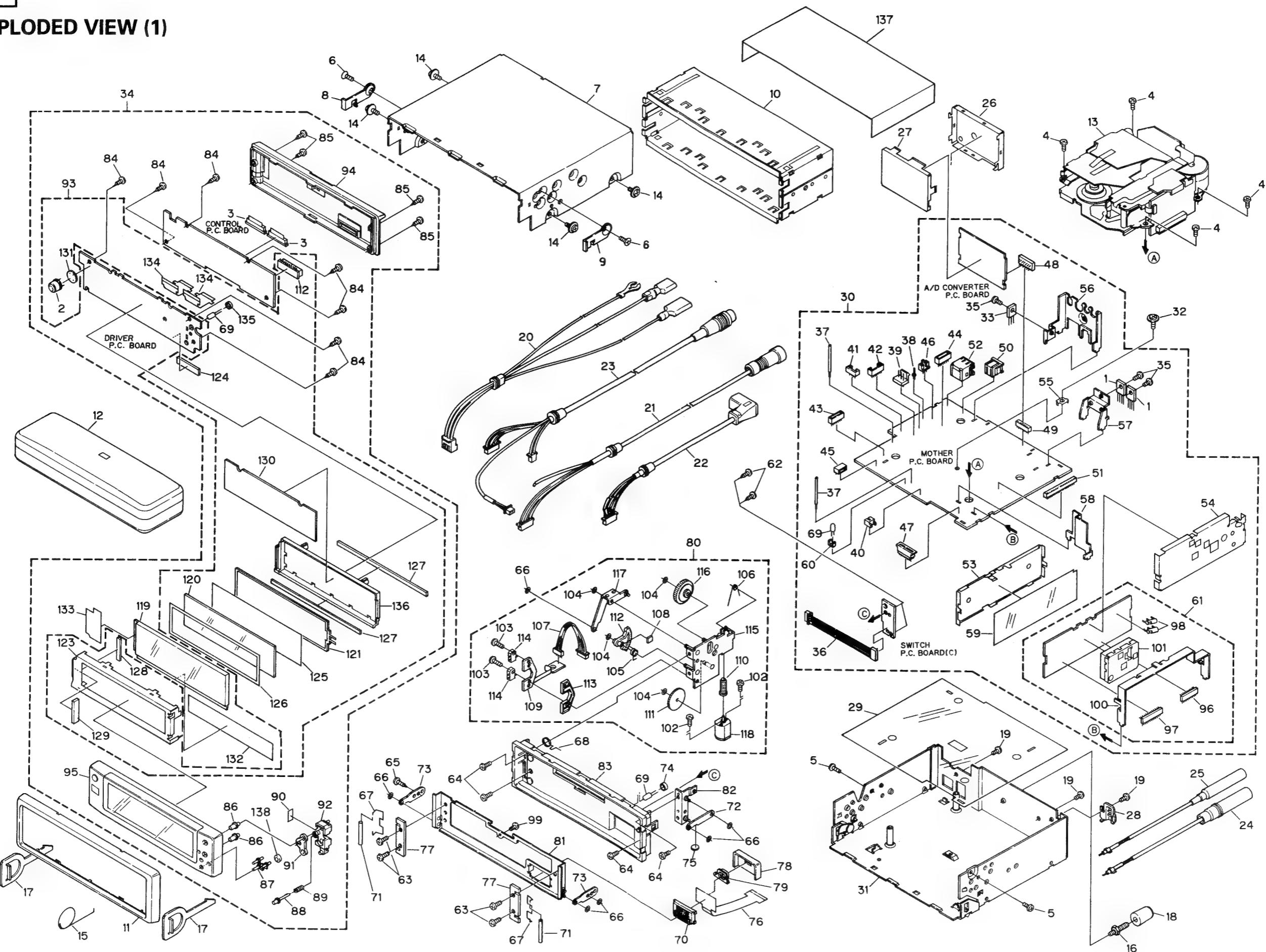


Fig.39

## NOTES:

- Parts marked by "\*" are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## ● Parts List(RS-K1/EW)

Mark No.	Description	Part No.
1	IC(IC956,957)	AN6540
2	IC(IC903)	BX-1393
3	Connector(CN902,903)	CKS2415
4	Screw	BMZ26P050FMC
5	Screw	BMZ30P040FMC
6	Screw	CMZ40P060FMC
7	Case	CNB1696
8	Holder	CNC3348
9	Holder	CNC3349
10	Holder	CNC5072
11	Panel	CNS2668
12	Case Assy	CXA5771
13	Cassette Mechanism Module	CXK1870
14	Screw	PMS30P050FZK
15	Spring	CBH-865
16	Screw	CBA1002
* 17	Holder	CNC3343
18	Bush	CNV1009
19	Screw	BMZ30P040FMC
20	Cord Assy	CDE3935
21	Cord	CDE3936
22	Cord	CDE3937
23	Connector Cord	CDE4043
24	Antenna Cable	CDH1169
25	Antenna Cable	CDH1170
26	Holder	CNC4706
27	Shield	CNC4707
28	Holder	CNC4709
29	Insulator	CNM3595
30	Audio Tuner Unit	CWM3435
31	Chassis Unit	CXA6275
32	Screw	PMS30P050FMC
33	Transistor(Q772)	2SD1189
34	Detach Grille Assy	CXA5378
35	Screw	BMZ30P060FMC
36	Cord(CN755)	CDE3939
37	Clamper	CEF1005
38	Terminal(CN757)	CKF-047
39	Plug(CN951)	CKS-556

Mark No.	Description	Part No.
40	Plug(CN952)	CKS-766
41	Plug(CN754)	CKS-786
42	Plug(CN954)	CKS-788
43	Plug(CN753)	CKS1040
44	Plug(CN852)	CKS1040
45	Plug(CN752)	CKS1051
46	Plug(CN953)	CKS1222
47	Plug(CN751)	CKS1436
48	Connector(CN703)	CKS1722
49	Plug(CN702)	CKS1756
50	Connector(CN701)	CKS1940
51	Connector(CN401)	CKS2189
52	Connector(CN851)	CKS2480
53	Case	CNB1414
54	Case	CNB1658
55	Holder	CNC2218
56	Holder	CNC4708
57	Holder	CNC4859
58	Holder	CNC5032
59	Insulator	CNM2891
60	Holder	CNV1906
61	FM/AM Unit	CWE1321
62	Screw	BPZ20P050FMC
63	Screw	CBA1082
64	Screw	CBA1154
65	Screw	CBA1254
66	Washer	CBF1039
67	Spring	CBH1516
68	Spring	CBH1561
69	Lamp	CEL1150
70	Socket	CKS2497
71	Roller	CLA2041
72	Arm	CNC4730
73	Arm	CNC4731
74	Spacer	CNM1642
75	Cushion	CNM2247
76	P.C.Board	CNP3292
77	Holder	CNV3445
78	Holder	CNV3446
79	Rubber	CNV3545

Mark No.	Description	Part No.	Mark No.	Description	Part No.
80	Drive Assy	CXA5376	110	Gear	CNV2389
81	Holder Unit	CXA5426	111	Gear	CNV3442
82	Holder Unit	CXA5428	112	Gear	CNV3443
83	Panel Unit	CXA6093	113	Spacer	CNV3444
84	Screw	BPZ20P060FMC	114	Switch(S751,752)	CSN1022
85	Screw	BPZ20P060FZK	115	Holder Assy	CXA5420
86	Button	CAC3541	116	Gear Unit	CXA5423
87	Button	CAC3542	117	Arm Unit	CXA5424
88	Button	CAC3543	118	Motor(M751)	CXM1085
89	Spring	CBH1511	119	LCD	CAW1189
90	Seal	CNM3645	120	LCD	CAW1190
91	Cushion	CNM3674	121	EL	CEL1323
92	Lens	CNV3428	122	Plug(CN901)	CKS2496
93	Display Unit	CWM3455	123	Holder	CNC4721
94	Cover Unit	CXA5413	124	Spacer	CNM3588
95	Grille Unit	CXA5589	125	Plate	CNM3589
96	Plug(CN1)	CKS1619	126	Spacer	CNM3591
97	Plug(CN2)	CKS1621	127	Spacer	CNM3617
98	Antenna Jack(ANT1,2)	CKX1010	128	Spacer	CNM3618
99	Screw	CBA1120	129	Spacer	CNM3619
100	Holder	CNC3506	130	Spacer	CNM3675
101	FM Front End	CWB1070	131	Sheet	CNM3854
102	Screw	CBA1062	132	P.C.Board	CNP3328
103	Screw	CBA1255	133	P.C.Board	CNP3329
104	Washer	CBF1039	* 134	P.C.Board	CNP3345
105	Spring	CBH1512	135	Bush	CNV-724
106	Spring	CBH1513	136	Housing	CNV3429
107	Connector	CDE3938	* 137	Spacer	CHW1154
108	Spacer	CNM3780	138	Cushion	CNM3901
109	P.C.Board	CNP3311			

● The RS-K1/UC and RS-K1/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-K1/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer accordingly. The RS-K1/EW Parts List is given on page 85.

Mark No.	Description	RS-K1/EW	RS-K1/UC	RS-K1/ES
		Part No.	Part No.	Part No.
7	Case	CNB1696	CNB1747	CNB1696
30	Audio Tuner Unit	CWM3435	CWM3439	CWM3437
31	Chassis Unit	CXA6275	CXA6276	CXA6276
34	Detach Grille Assy	CXA5378	CXA5382	CXA5380
61	FM/AM Unit	CWE1321	CWE1323	CWE1320
95	Grille Unit	CXA5589	CXA5591	CXA5589
97	Plug(CN2)	CKS1621	CKS1620	CKS1620

## 8. CASSETTE MECHANISM MODULE EXPLODED VIEW (X-0RS MECHANISM)

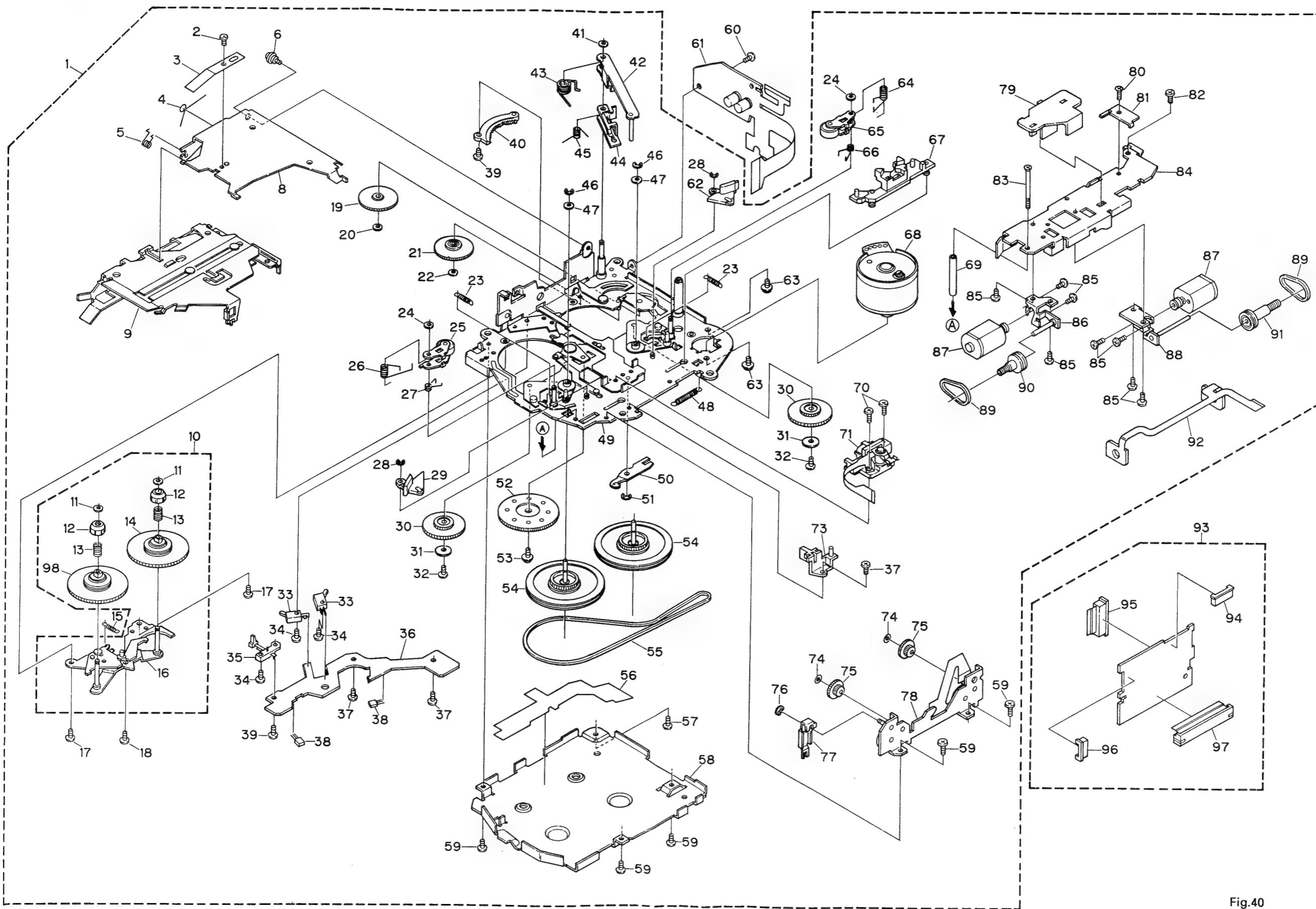


Fig.40

## ●Parts List

Mark No.	Description	Part No	Mark No.	Description	Part No
1	Cassette Mechanism Unit	CXA5785	44	Arm	CNG-618
2	Screw(M1.4×1.4)	HBA-147	45	Spring	CBH-886
3	Spring	CBE1023	46	Washer	CBG1003
4	Spring	CBH-867	47	Washer	HBF-179
5	Spring	CBH-837	48	Spring	CBH-830
6	Screw	CBA1243	49	Chassis Unit	CXA4575
7	.....		50	Spring	CBL1050
8	Arm	CNC2373	51	Washer	YE12FUC
9	Holder Unit	CXA4580	52	Gear	CNW-944
10	Reel Assy	CXA4581	53	Screw(M2×4)	CBA1106
11	Washer	CBF1022	54	Flywheel	CNR1322
12	Collar	CNW-932	55	Belt	CNT1046
13	Spring	CBH-827	56	Insulator	CNM2592
14	Reel Unit	CXA5076	57	Screw(M2×6)	CBA1004
15	Spring	CBH-868	58	Cover	CNC4106
16	Bracket Unit	CXA1481	59	Screw	BMZ20P025FMC
17	Screw	BMZ20P030FMC	60	Screw(M2×4)	CBA1015
18	Screw(M1.7×3)	CBA-186	④	61 Control Unit	CWM2727
19	Gear Unit	CXA4583	62	Arm	CNV1253
20	Washer	CBF1026	63	Screw	PMS26P025FMC
21	Gear	CNV3036	64	Spring	CBH1276
22	Washer	CBF1023	65	Pinch Roller Unit	CXA2608
23	Spring	CBH-835	66	Spring	CBH1196
24	Washer	CBF1025	67	Lever	CNV3195
25	Pinch Roller Unit	CXA2609	68	Motor(Capstan)(M3)	CXM1084
26	Spring	CBH1277	69	Spacer	CNC1651
27	Spring	CBH1197	70	Screw	PMZ20P035FMC
28	Washer	YE25FUC	71	Head Unit(HD1)	CXA4587
29	Arm	CNV1254	72	.....	
30	Gear	CNV1616	73	Clamper	CNV3186
31	Collar	CLA1238	74	Washer	CBF-135
32	Screw(M2×2.5)	HBA-175	75	Gear	CNV1262
33	Switch(70 μS,CST IN) (S2,3)	CSN1023	76	Washer	YE15FUC
34	Screw(M1.7×5.5)	CBA1025	77	Arm	CNH-004
35	Switch(CST SET)(S1)	CSN-089	78	Holde Assy	CXA5016
36	P.C.Board	CNP2880	79	Clamper	CNV3039
37	Screw(M2×2.5)	CBA1037	80	Screw	HBA-212
38	Magnetic Resistive Device(MR1,2)	DM-106B	81	Plate	CNC3632
39	Screw(M2×5)	CBA1054	82	Screw(M1.7×3)	CBA1125
40	Gear	CNV1075	83	Screw(M2×25)	CBA-165
41	Washer	CBF-088	84	Guide	CNC4087
42	Arm Unit	CXD-389	85	Screw(M2×2.2)	HBA-174
43	Spring	CBH-887	86	Bracket Unit	CXA4578
			87	Motor Unit(FF/REW,Head)	CXA4577 (M1,2)

Mark No.	Description	Part No
88	Bracket Unit	CXA4576
89	Belt	CNT1054
90	Pulley	CNV3044
91	Pulley	CNV3037
92	P.C.Board	CNP2878
93	Deck Unit	CWM3449
94	Connector(8P)(CN253)	CKS2129
95	Connector(18P)(CN254)	CKS2122
96	Connector(6P)(CN251)	CKS2127
97	Connector(30P)(CN252)	CKS2188
98	Reel Unit	CXA5077

## 9. EXPLODED VIEW(2)

### ●Parts List

Mark No.	Description	Part No.
1	Cord(EW)	CDE3945
	Cord(US,ES)	CDE3933
2	Cap	CNS1472
3	Resistor	RS1/2P102JL
4	Screw	BMZ30P050FZK
5	Connector Assy	CDE4044
6	Chassis	CNA1531
7	Case	CNB1731
8	Shield	CNC4864
9	Shield	CNC4865
*	10 Insulator	CNM3843
*	11 Seal	CNM3844
12	Power Supply Unit	CWR1045
13	Screw	PPZ26P050FMC
14	Screw	BMZ30P060FMC

Mark No.	Description	Part No
15	Plug(CN1001)	CKS-461
16	Plug(CN1005)	CKS-784
17	Plug(CN1004)	CKS-790
18	Shield Plate	CNC3377
19	Shield Case	CNC3398
20	Holder	CNC4876
21	Inverter(INV100)	CTX1040
22	Transistor(Q1003)	2SD1189
23	Antenna Unit	CXA5526
24	Element Assy	CZX4532
25	Base Assy	CZX4533
26	Feeder Assy	CZX4534

## ●Exploded View (2)

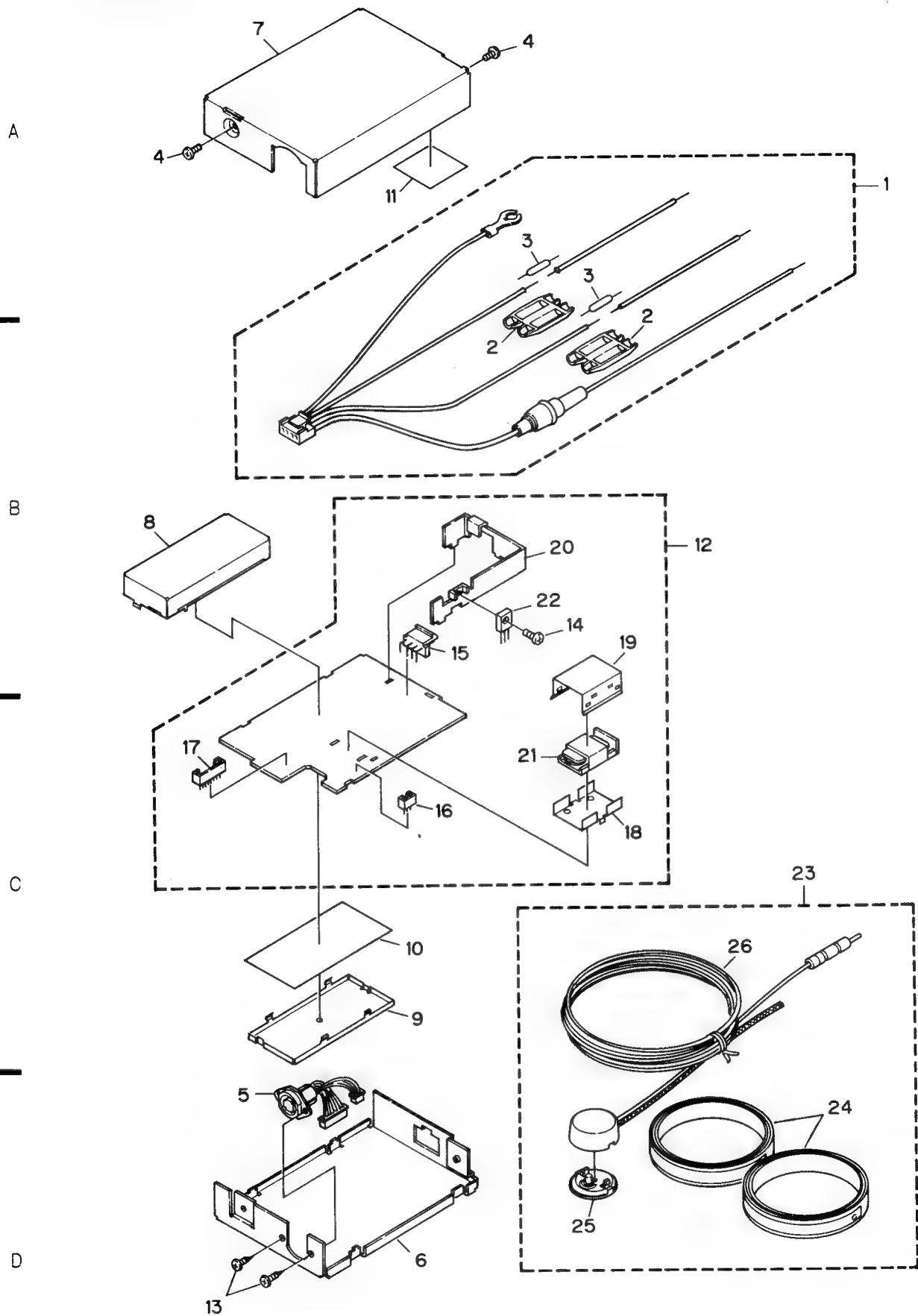


Fig.41

## 10. FREE SPACE REMOTE CONTROL EXPLODED VIEW

### ●Parts List(RS-K1/EW)

Mark No.	Description	Part No	Mark No.	Description	Part No	
1	Button(DETACH)	CAC3482	36	Switch(S25:DOOR)	CSN-078	
2	Button	CAC3878	37	Remote Control Assy	CWM3517	
3	Button(CD PAUSE)	CAC3484	38	Base Assy	CXA5569	
4	Button(MENU)	CAC3485	39	Door Unit	CXA5754	
5	Button	CAC3879	40	Grille Unit	CXA6016	
6	Button(CHANGE/ESCAPE)	CAC3487	41	Screw	BNC40P100FZK	
7	Button	CAC3488	42	Cord	CDE4037	
8	Button(VOL-)	CAC3489	43	Plug(CN5)	CKS2572	
9	Button(ATT)	CAC3490	44	Plug(CN4)	CKS2573	
10	Button(VOL+)	CAC3661	45	P.C.Board	CNP3307	
11	Screw	CBA1253	46	Connector(CN1)	CKS2191	
12	Screw	CBA1263	47	Connector(CN7)	CKS2192	
13	Screw	CBA1265	48	Connector(CN6)	CKS2196	
14	Screw	CBA1183	49	Screw	BMZ30P060FMC	
15	Screw	CBA1281	50	Screw	CBA1262	
16	Screw	CBA1282	51	Screw	CBA1264	
17	Cord	CDE3990	52	Screw	CBA1279	
18	Holder	CNC4792	53	Screw	CBA1282	
19	Holder	CNC4793	54	Spring	CBH1524	
20	Holder	CNC4794	55	Cord	CDE3946	
21	Bracket	CNC4913	56	Holder	CNC4682	
22	Cushion	CNM3892	57	Base	CNS2633	
23	Sheet	CNM3718	58	Base	CNS2634	
24	Spacer	CNM3760	59	Base	CNS2674	
25	Spacer	CNM3818	60	Cover	CNS2675	
*	26	Film	CNM3819	61	Spring Unit	CXA5353
*	27	Film	CNM3820	62	Switch(S2:BATTERY)	CSH1032
*	28	Lower Case	CNS2630	63	Free Space Remote Control	CPX1015
*	29	Battery Cover	CNS2631			
*	30	Plate	CNS2632			
	31	Base	CNS2676			
	32	Guide	CNV3393			
	33	Guide	CNV3394			
	34	Lens	CNV3395			
	35	Lens	CNV3396			

●The RS-K1/UC and RS-K1/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-K1/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer accordingly.

Mark No.	Description	RS-K1/EW	RS-K1/UC	RS-K1/ES
		Part No	Part No	Part No
37	Remote Control Assy	CWM3517	CWM3515	CWM3515
39	Door Unit	CXA5754	CXA5945	CXA5754
40	Grille Unit	CXA6016	CXA6015	CXA6017
63	Free Space Remote Control	CPX1015	CPX1021	CPX1022

### ●Free Space Remote Control

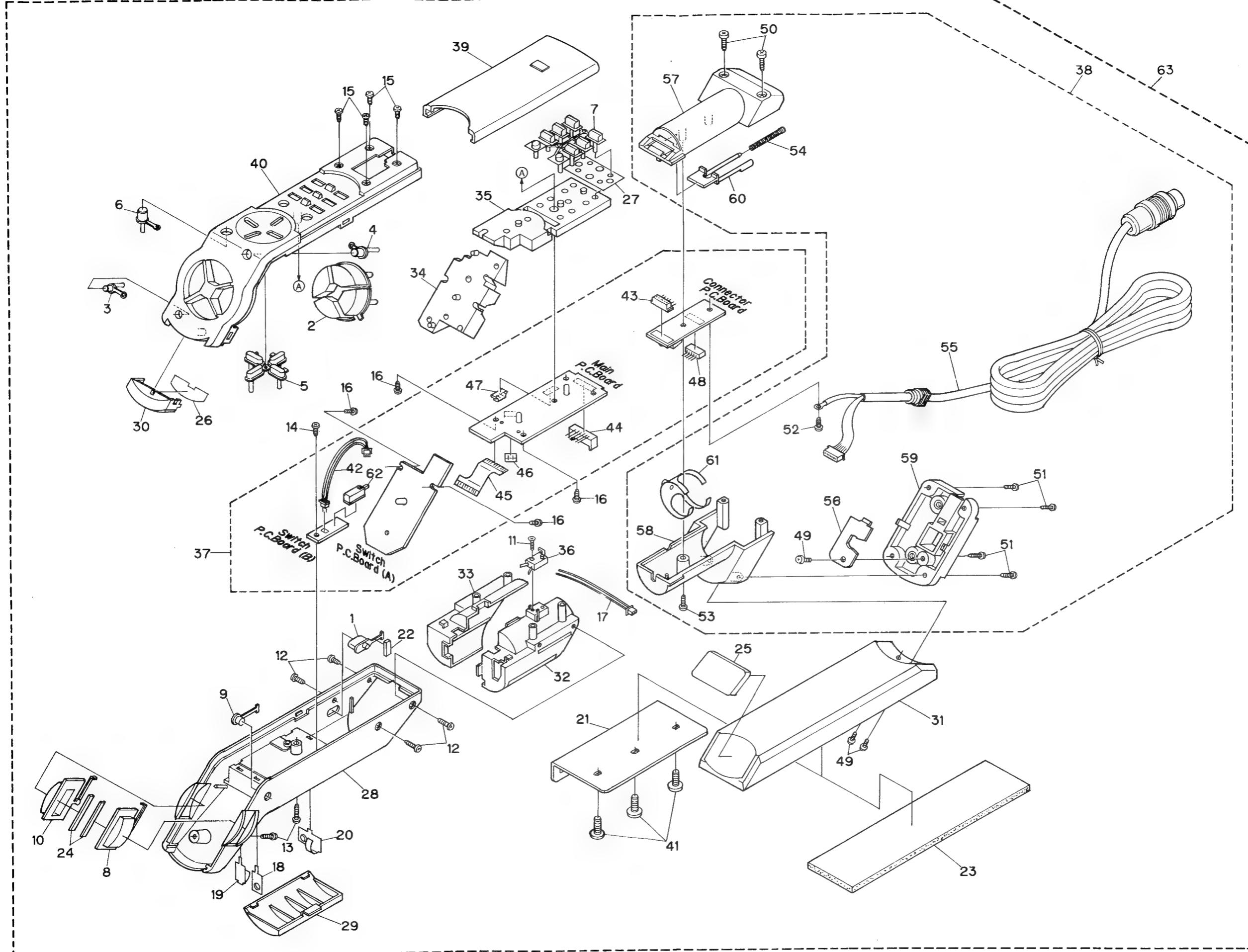


Fig.42

## 11. PACKING METHOD

### 11.1 GENERAL

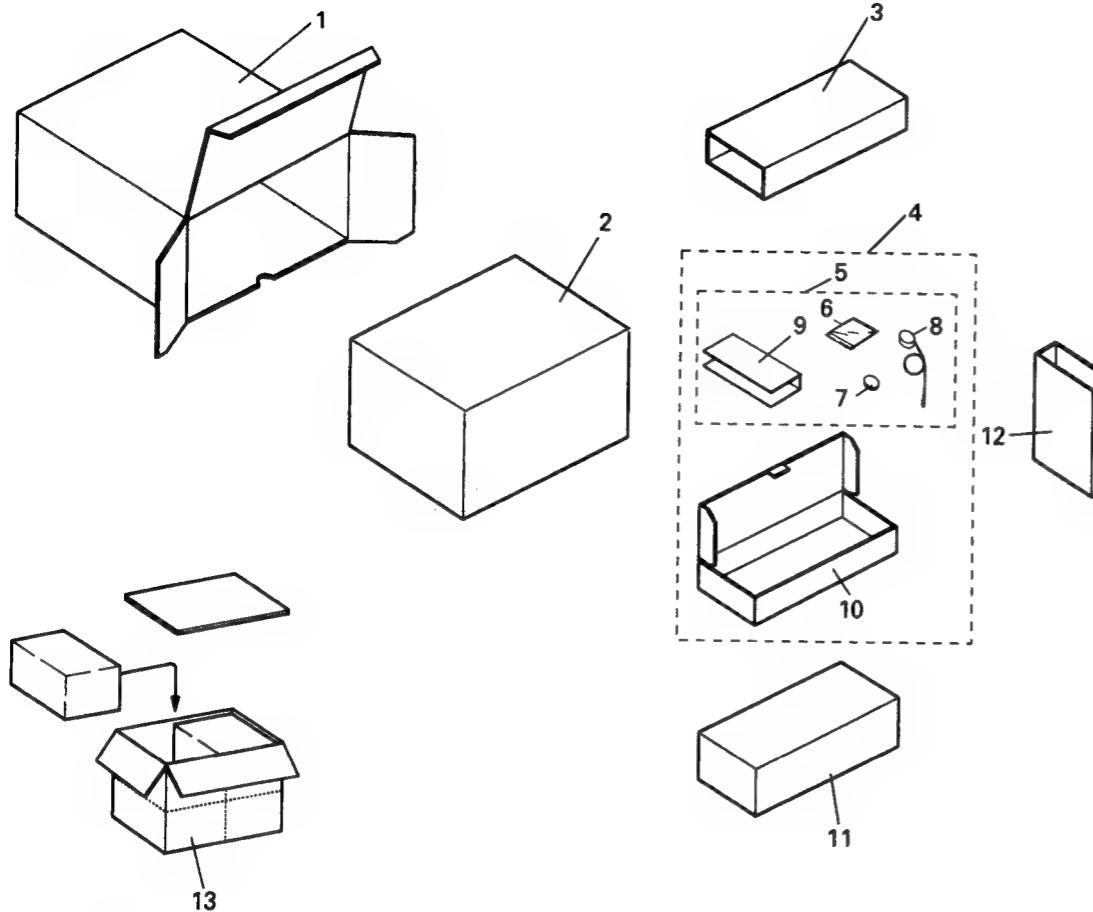


Fig.43

#### ●Parts List(RS-K1/EW)

Mark No.	Description	Part No
1	Carton	CHG2374
*	2 Tuner Deck	CPN1186
3	Spacer	CWH1312
4	Antenna Assy	CXA5784
5	Antenna Unit	CXA5526
6	Accessory Assy	CEA1792
*	6-1 Base Gauge	CZH4528
7	Base Assy	CZX4533
7-1	Double-side Seal	CZN4571
8	Feeder Assy	CZX4534

Mark No.	Description	Part No
9	Element Assy	CZX4532
*	10 Carton	CHG2320
11	Free Space Remote Control	CPX1015
12	Spacer	CWH1313
13	Contain Box	CHL2374

### 11.2 TUNER DECK

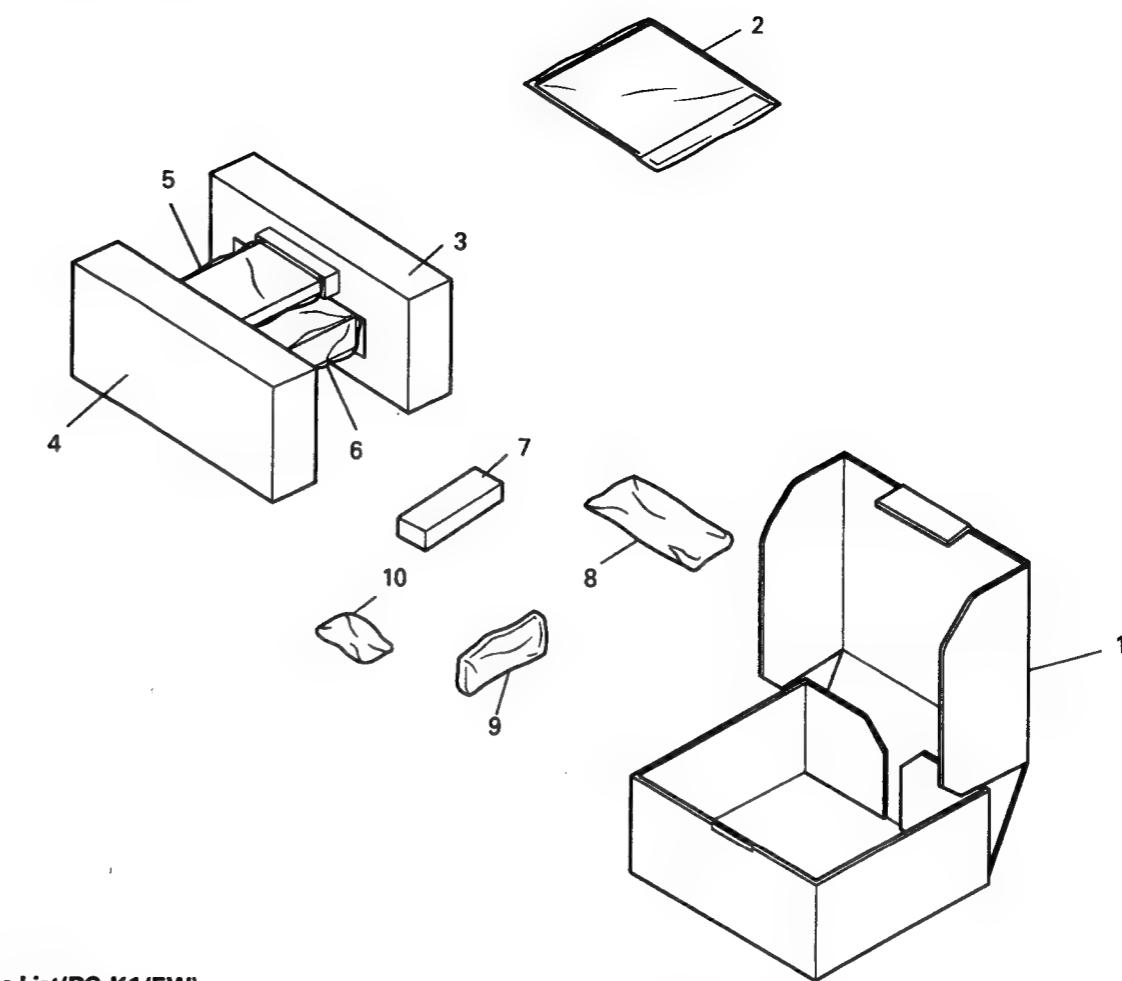


Fig.44

#### ●Parts List(RS-K1/EW)

Mark No.	Description	Part No	Mark No.	Description	Part No
1	Carton	CHG2371	8-1-2	Screw (X4)	BMZ50P080FMC
2-1	Owner's Manual	CRB1308	8-1-3	Screw (X1)	CBA1002
2-2	Owner's Manual	CRB1304	*	8-1-4 Polyethylene Bag	CEG-127
*	2-3 Caution Card	CRP1122	8-2	Spring	CBH-865
*	2-4 Passport	CRY1013	*	8-3 Holder(X2)	CNC3343
*	2-5 Card	CRY-062	8-4	Bush	CNV1009
*	2-6 Polyethylene Bag	E36-634	*	8-5 Polyethylene Bag	E36-613
3	Protector(L)	CHP1600	9	Cord	CDE3945
4	Protector(R)	CHP1601	10	Accessory Assy	CEA1896
*	5 Polyethylene Bag	CEG-172	10-1	Screw(X1)	BPZ20P060FZK
6	Cover	CEG1064	10-2	Screw(X1)	CBA1120
7	Case Assy	CXA5771	10-3	Holder(X1)	CNC4911
8	Accessory Assy	CEA1641	*	10-4 Installation Manual	CRB1297
8-1	Screw Assy	CEA1872	*	10-5 Polyethylene Bag	CEG1101
8-1-1	Screw (X4)	BMZ40P080FMC			

## 11.3 FREE SPACE REMOTE CONTROL

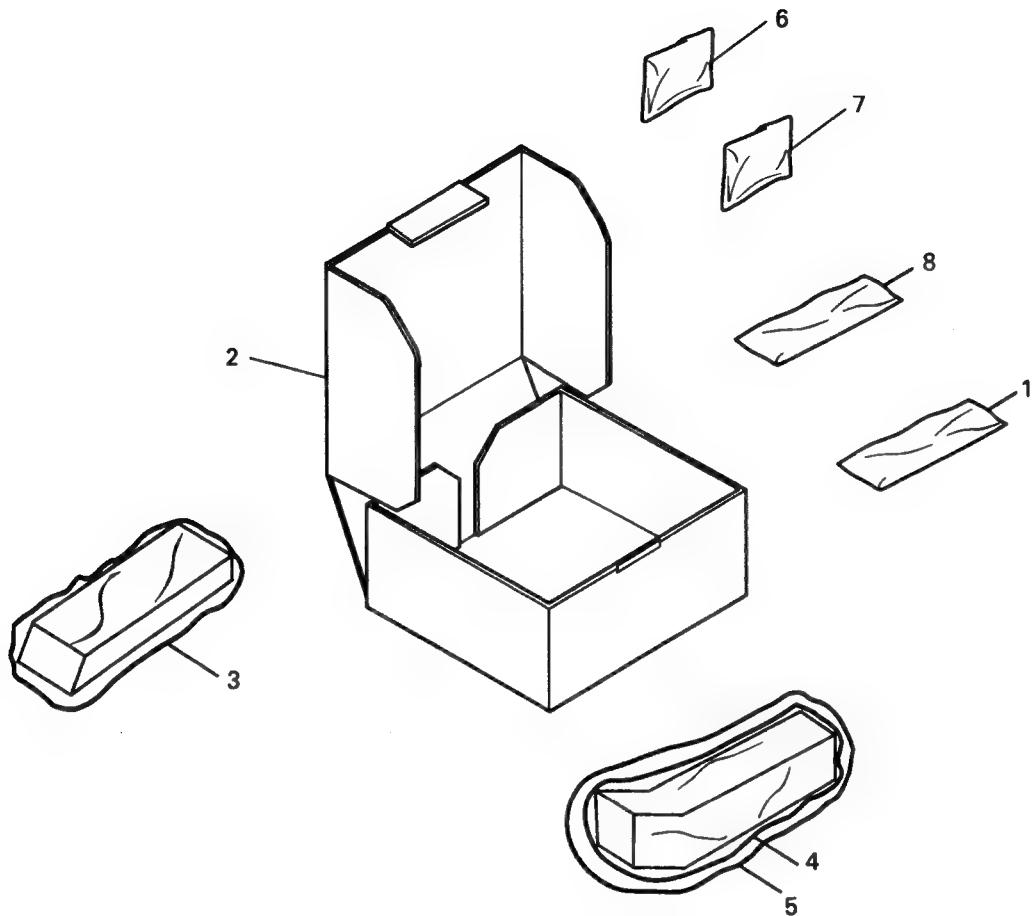


Fig.45

## ●Parts List(RS-K1/EW)

Mark No.	Description	Part No	Mark No.	Description	Part No
1.	Seat	CNM3718	6-3	Screw(X3)	BPZ30P100FZK
2	Sub Carton	CHG2345	* 6-4	Polyethylene Bag	E36-613
3-1	Base	CNS2676	* 7	Battery	CEX1021
3-2	Spacer	CNM3818	8	Bracket	CNC4913
3-3	Cover	CEG1073			
* 4	Cover	CEG1083			
5	Air Cushioned Bag	CEG1143			
6	Accessory Assy	CEA1831			
6-1	Screw(X2)	BMZ30P060FMC			
6-2	Screw(X3)	BNC40P100FZK			

●The RS-K1/UC and RS-K1/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-K1/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-K1/EW Parts List is given on page 95.

●General

Mark No.	Description	RS-K1/EW	RS-K1/UC	RS-K1/ES
		Part No	Part No	Part No
1	Carton	CHG2374	CHG2375	CHG2376
*	2 Tuner Deck	CPN1186	CPN1220	CPN1221
11	Free Space Remote Control	CPX1015	CPX1021	CPX1022
13	Contain Box	CHL2374	CHL2375	CHL2376

●Tuner Deck

Mark No.	Description	RS-K1/EW	RS-K1/UC	RS-K1/ES
		Part No	Part No	Part No
1	Carton	CHG2371	CHG2372	CHG2373
2-1	Owner's Manual	CRB1308	CRB1275	CRB1276
*	2-4 Passport	CRY1013	.....	.....
*	2-5 Card	CRY-062	.....	.....
*	2-7 Warranty Card	.....	CRY1053	.....
8	Accessory Assy	CEA1641	CEA1615	CEA1615
8-1	Screw Assy	CEA1872	CEA1632	CEA1632
8-1-5	Screw(X1)	.....	BPZ20P040FZK	BPZ20P040FZK
8-1-6	Screw(X1)	.....	CBA-102	CBA-102
8-1-7	Nut(X2)	.....	NF50FMC	NF50FMC
*	8-5 Polyethylene Bag	E36-613	CEG-158	CEG-158
8-6	Strap	.....	CNF-111	CNF-111

●Free Space Remote Control

Mark No.	Description	RS-K1/EW	RS-K1/UC	RS-K1/ES
		Part No	Part No	Part No
2	Sub Carton	CHG2345	CHG2346	CHG2347

## 12.ELECTRICAL PARTS LIST

### NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

#### Chip Resistor

RS1/OS000J, RS1/OOS000J

#### Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

#### ● Parts List(RS-K1/EW)

=====Circuit Symbol & No. Part Name=====			Part No.	=====Circuit Symbol & No. Part Name=====			Part No.			
<b>Unit Number : CWE1321</b>										
<b>Unit Name : FM/AM Unit</b>										
<b>MISCELLANEOUS</b>				<b>RESISTORS</b>						
IC 1		KHA273B	R 1				RS1/16S562J			
IC 51		PA4019A	R 4				RS1/16S102J			
IC 201		PAF001A	R 5				RS1/16S472J			
Q 1 5		DTC124EU	R 6				RS1/16S392J			
Q 2 10 131 132 203		DTC124EU	R 7 8				RS1/16S0R0J			
Q 3 71 123		2SC4116	R 10				RS1/16S472J			
Q 11		DTC124EU	R 41				RS1/16S683J			
Q 41		2SB709	R 42				RS1/16S154J			
Q 51		DTC124EU	R 54				RS1/10S562J			
Q 52		2SC4116	R 56				RS1/16S333J			
Q 126		2SC4116	R 57 66 100				RS1/16S153J			
Q 201		FC12(12G)	R 58				RS1/16S273J			
Q 202		2SC4116	R 59 74				RS1/16S331J			
Q 231		DTC124EU	R 72				RS1/16S123J			
D 201 204		MA157-MR	R 73				RS1/16S103J			
D 205		SVC203CP	R 75				RS1/16S102J			
L 1	Inductor	LCTA150K3225	R 76				RS1/16S221J			
L 2	Inductor	LCTBR12K3125	R 101				RS1/10S331J			
L 41	Inductor	LCTB1R0K2125	R 102 111				RS1/16S183J			
L 42	Inductor	LCTBR15K2125	R 104				RS1/16S102J			
L 51	Inductor	LCTA150K3225	R 105				RS1/16S333J			
L 52	Inductor	LCTA220K3225	R 106				RS1/16S684J			
L 71	Inductor	LCTB3R9K2125	R 108				RS1/16S333J			
L 101	Inductor	LCTA102K4532	R 123				RS1/16S273J			
L 201	Coil	CTB1086	R 127				RS1/16S103J			
L 202	Coil	CTB1082	R 128				RS1/16S103J			
L 203	Inductor	LCTB390K2125	R 129				RS1/16S184J			
L 204	Inductor	LCTB680K2125	R 132				RS1/16S0R0J			
L 205	Inductor	CTF1198	R 137				RS1/16S223J			
L 206	Inductor	CTF1197	R 142				RS1/16S473J			
T 51	Coil	CTE1067	R 143				RS1/16S393J			
T 52	Coil	CTE1068	R 148				RS1/10S222J			
T 71	Coil	CTE1058	R 151 152				RS1/16S322J			
T 203	Coil	CTB1087	R 153				RS1/16S222J			
T 204	Coil	CTE1064	R 201				RS1/16S220J			
T 205	Coil	CTE1060	R 202				RS1/10S681J			
T 206	Coil	CTE1061	R 203				RS1/16S222J			
TH 51	Thermister	DTN-T204D333K	R 204				RS1/16S473J			
TH 102	Thermister	CCX1021	R 205 209				RS1/16S470J			
CF 52 53	Ceramic Filter	CTF1193	R 207				RS1/10S822J			
CF 201	Crystal Filter	CTF1262	R 211 212 236 237 238				RS1/16S103J			
CF 202	Ceramic Filter	CTF1191	R 214				RS1/16S182J			
X 151	Ceramic Resonator 456kHz	CSS1075	R 231				RS1/16S823J			
X 201	Crystal Resonator 10.26MHz	CSS1094	R 232				RS1/10S102J			
VR 1	Semi-fixed 22kΩ(B)	CCP1183	R 233				RS1/16S222J			
VR 51 101 102	Semi-fixed 33kΩ(B)	CCP1184	R 235				RS1/16S104J			
AR 1		DSP-141N	R 239				RS1/16S392J			
AR 2		DSP-141N	R 240				RS1/16S473J			
FE 1	FM Front End	CWB1070								

=====Circuit Symbol & No. Part Name=====			Part No.	=====Circuit Symbol & No. Part Name=====	Part No.
R 241 242			RS1/16S103J	Unit Number :	
R 243			RS1/16S152J	Unit Name : Control Unit	
R 244			RS1/16S242J		
R 249			RS1/16S225J		
CAPACITORS				IC 901	PA3028A
C 1 111 125			CEV100M16	R 901 902 903	RS1/8S0R0J
C 2 51 59			CKSRYF473Z25	C 901 902 910	CCH1123
C 5			CKSQYB472K50	C 903 904 905 906 907 908	CKSQYB473K50
C 41 43			CSZSR100M10	C 909	CKSYF684Z16
C 42			CKSRYB103K25		CKSQYB223K50
C 44			CSZSC220M10		
C 45			CCSRCH220J50		
C 52 53 61			CKSRYB223K25		
C 54			CCSQCH101J50		
C 56			CKSRYF104Z25		
C 57			CSZSR33M25		
C 58			CCSRCH070D50		
C 60			CEVNP100M10		
C 62			CCSRPH820J50		
C 63			CCSRPH470J50		
C 72 73 80 104			CKSRYB103K50	IC 451 452	BA3129F
C 74 129 158			CKSRYF473Z25	IC 453 454	NJM4558M
C 101			CKSRYB682K50	IC 501	LC72140M
C 102			CKSRYB682K50	IC 502	CWV1034
C 103			CKSQYB392K50	IC 601	PD4437A
C 105			CEVR47M50	IC 602 603	MSM82C55A-2GS
C 106			CKSQYB104K25	IC 604	LH5116HN-10T
C 107 108			CKSRYB222K50	IC 605	PA0054AM
C 110			CKSYB224K25	IC 701	AK5369-VS
C 112			CKSYB183K25	IC 702	M51581FP
C 122			CKSYB104K50	IC 703	TC74HCU04AF
C 123			CKSYB103K50	IC 754	TK11235
C 124			CSZS3R3M10	IC 851	TC7W02F
C 127			CEV4R7M35	IC 852 951	XRA6288FS
C 128			CKSRYB223K25	IC 853	TA8181F
C 131			CCSRCH820J50	IC 854	
C 132 153			CSZSR47M20	IC 953	PMI001A
C 151 152			CKSQYB183K25	IC 954	PD4308AM
C 154 155 156			CEV3R3M50	IC 955	PA0051AM
C 157			CEV101M10	IC 956 957	NJM78L05A
C 201 216 241			CKSRYB103K50	Q 451 452	NJM78L05UA
C 202 212			CKSRYB332K50	Q 455 456 758 766 769	AN6540
C 203			CSZS3R3M10	Q 457	DTC343TK
C 204			CKSQYB223K25		DTCT144TK
C 205			CCSRCH120J50	Q 501	DTA114EK
C 206			CCSRCH560J50	Q 503 505 508 509 510 753 754 855	2SC2498
C 207			CCSRCH680J50	Q 506	2SC2712
C 208			CKSRYB223K25	Q 507 517	2SK208
C 210			CKSQYB103K50		DTC124EK
C 211 235			CEVR47M50	Q 516	2SC2712
C 213			CCSQCH330J50	Q 518	DTC144TK
C 215			CKSRYF473Z25	Q 601 961	2SA1162
C 220			CCSRCH430J50	Q 602 603 759 771 776 854	DTC114TK
C 221			CCSRCH120J50	Q 704	2SC1621
C 224 229			CEV470M16	Q 752 856	2SA1036K
C 225			CKSQYB333K25	Q 755 757 951 952 966	2SC2712
C 226			CKSQYB473K25	Q 756	2SB1238
C 231			CCSRCH100D50	Q 761	2SC1621
C 232 234 244			CKSRYB103K50	Q 765 954	2SA1162
C 233			CKSQYF473Z25	Q 767	2SA1298
C 236			CKSYB104K50	Q 768	2SC3295
C 237			CEV4R7M35	Q 770	DTA114EK
C 238			CEV3R3M50	Q 772	2SD1189
C 239			CKSRYB223K25		
C 242			CCSRCH030C50		

=====Circuit Symbol & No. Part Name=====		Part No.	=====Circuit Symbol & No. Part Name=====		Part No.
Q 773		DTA124EK	R 467	468	RN1/10SE133D
Q 775		DTA143EK	R 469	470	RN1/10SE203D
Q 799		2SC3295	R 471	565 566	RN1/10SE103D
Q 955		2SD1864	R 473	474	RN1/10SE104D
Q 958 959		DTC114EK	R 475	476 552 645	RS1/10S103J
Q 960 965		2SA1298	R 479	480 510 546 859 959 961	RS1/10S472J
Q 964		2SB1132	R 482	486	RS1/10S104J
D 451		MA151WA-MN	R 483	484	RS1/10S683J
D 453 454 455 856		MA110-1A	R 487	545 551 636 644 711 724	RS1/10S104J
D 457		MA153-MC	R 488	513 520 529 539 540 541 542 543	RS1/10S102J
D 459 460 857 955		MA151WK-MT	R 489	647 648 761 788 789 794 962 971	RS1/10S102J
D 501		MA3027H	R 501		RS1/10S331J
D 502		MA3027H	R 502		RS1/10S182J
D 503		MA3047M	R 503	505 874 875	RS1/10S101J
D 504 505 506 762		MA151WK-MT	R 504		RS1/10S821J
D 751 753 754 755 756 758		HSM123	R 511	517 518 519	RS1/10S102J
D 761		MA3062L	R 512		RS1/10S152J
D 763 764		MA110-1A	R 515	555	RS1/10S222J
D 852 853 956 957 958		ERA15-02	R 521	567 602 617 619 620 722 778	RS1/10S102J
D 854 855		MA3180M	R 524	615 616 621 622 623 624 772 862	RS1/10S103J
D 952		MA3075H	R 525	526 528 534 535 618 630 631 632 858	RS1/10S222J
D 953		MA3082M	R 527	547 548 549 550 792 798 978 979 980	RS1/10S102J
D 959		MA3056M	R 532	538 569 766 776	RS1/10S472J
D 961		MA3091M	R 533	544 553 570 604 634 638 639	RS1/10S473J
D 962		MA3160H	R 536		RS1/10S333J
D 963		MA3110L	R 554		RS1/10S104J
ZNR751 752 753		ERZ-CF2MK220	R 556		RS1/8S151J
L 501 505	Inductor	LCYA4R7K3225	R 557	558	RN1/10SE473D
L 502	Inductor	LCTB2R2K2125	R 571		RS1/10S335J
L 503	Inductor	LCYA2R2M3225	R 573		RS1/10S181J
L 504 708 953	Inductor	LCYA2R2M3225	R 601		RS1/10S202J
L 506	Inductor	LCYA4R7K3225	R 603		RS1/10S223J
L 601 602 603 604	Inductor	LCTB100K2125	R 627	641	RS1/10S104J
L 701 702 703 704	Inductor	LCYA100K3225	R 642	643 646 649 712 713 714 716 717 718	RS1/10S473J
L 705	Inductor	LCTB100K2125	R 650		RS1/10S473J
L 706 707	Inductor	LCYA1R0M3225	R 705	706	RS1/10SE510D
L 709 710	Inductor	LCTB1R0K2125	R 709		RS1/10S100J
L 751	Inductor	LCYA4R7K3225	R 710	791 879 970	RS1/10S473J
L 752	Inductor	LCYA100K3225	R 719	758 759 760 763 764 767 774 974	RS1/10S473J
L 753	Inductor	LCTA2R7K4532	R 720		RS1/10S105J
L 755 756	Inductor	LCTA4R7K4532	R 721	777	RS1/10S112J
TC 601	Trimmer	CCG1002	R 723		RS1/10S391J
X 501	Crystal Resonator 7.2MHz	CSS1106	R 725	728	RS1/10S511J
X 601	Crystal Resonator 4.194304MHz	CSS1070	R 727		RS1/10S511J
X 701	Crystal Resonator 11.2896MHz	CSS1088	R 729		RS1/10S681J
X 851	Ceramic Resonator 12.583MHz	CSS1108	R 751	753 754 755	RS1/8S222J
S 751	Switch	CSG1035	R 756		RS1/8S222J
IL 751	Lamp 14V 40mA	CEL1150	R 765	872 964	RS1/10S103J
VR 601	Semi-fixed 4.7kΩ(B)	CCP1152	R 769		RS1/10CIS22J
	FM/AM Unit	CWE1321	R 770		RS1/8S222J
BZ 601		CPV1012	R 779	797 861 952 954 966 972 981	RS1/10S472J
			R 780	783 785 860 863 864 865 866 867 983	RS1/10S473J
			R 781	784 786	RS1/8S222J
			R 787		RS1/4S681J
			R 793		RS1/10S224J
R 401		RA4C473J			
R 405 418 609		RA4C222J			
R 410 423		RA2CQ222J	R 795	796	RS1/10S224J
R 412 413 414		RS1/10S222J	R 851		RN1/10SE181D
R 422 514		RS1/10S222J	R 852		RN1/10SE181D
R 424 506 509 537 605 606 607 608 613 614		RS1/10S103J	R 854		RN1/10SE223D
R 425 477 478 481 485 522 523 530		RS1/10S473J	R 868	869 870 871 951 953 960 968 982	RS1/10S473J
R 426 427 633 773 775		RS1/10S473J	R 873		RS1/10S620J
R 451 452 463 559 560 561 562 877		RN1/10SE102D	R 958		RS1/10S183J
R 453 454		RN1/10SE104D	R 965		RS1/4S220J
R 455 456 853		RN1/10SE223D	R 969		RS1/4S152J
R 457 458		RN1/10SE363D	R 976		RS1/10S510J
R 459 460 461 462 472		RN1/10SE103D	R 977		RS1/10S221J
R 464 878		RN1/10SE102D			
R 465 466		RN1/10SE912D			

=====Circuit Symbol & No. Part Name=====		Part No.	=====Circuit Symbol & No. Part Name=====		Part No.
CAPACITORS			C 984		CEAS331M10
C 402		CKSQYB472K50	C 993		CEA100M25LS
C 403		CEA470M16LL	Unit Number : CWM3449		
C 451 452		CEWAR100M16	Unit Name: Deck Unit		
C 453 454 455 456 459 460 461 462		CCSQCH100D50	MISCELLANEOUS		
C 457 458		CEWAR100M16			
C 463 464		CEVNP100M16	IC 251		HA12173-01
C 465 603 958 983		CEA10M50LS2	D 351		IMN10
C 466 468 470 472 962 967 969 971		CEWAR101M10	VR 301 302		CCP1130
C 467 469 471 473 601 602 714		CKSQYB473K50	Semi-fixed 33kΩ(B)		
C 501 509 511 524 528 529 532		CKSQYB103K50			
C 502		CCSQCH561J50	RESISTORS		
C 503 504 506		CCSQCH101J50	R 251 252 253 254		RN1/10SE104D
C 507 0.047μF		CCG1008	R 255 256		RN1/10SE181D
C 508 4.7μF/16V		CCH1005	R 257 258		RN1/10SE133D
C 510		CFTNA474J50	R 259 260		RN1/10SE183D
			R 261 262		RN1/10SE334D
C 512		CEAR47M50LS2	R 265		RN1/10SE183D
C 513 514		CCSQCH180J50	R 271 272 273 321 322		RS1/10S103J
C 515 520 521 522 523		CKSQYB223K50	R 274		RS1/10S102J
C 516		CCSQCH101J50	R 275 402		RS1/10S223J
C 517 518		CEA4R7M35LS	R 301 302		RS1/10SE223D
C 525 526		CEWAR010M50	R 303 304		RN1/10SE561D
C 527		CEA100M16LS2	R 401		RS1/10S273J
C 530		CSZSR22M35	R 403 405		RS1/10S274J
C 531 874 875		CKSQYB102K50	R 404		RS1/10S823J
C 604		CCSQCH150J50	CAPACITORS		
C 605		CCSQCH050C50	C 251 252 253 254		CFHSQ101J50
C 606		CKSQYB102K50	C 255 256		CFHSQ103J16
C 607 608 708 997 998 999		CKSQYB473K50	C 257 258		CCH1168
C 609 610 611 960 963 978 985 987		CKSQYB473K50	1μF/50V(NP)		CECV010M50
C 612 616 877 994 995 996		CKSQYB473K50	C 265		CCH1167
C 613 615 709 711 973 976 979 988 992		CKSQYB103K50	C 301 302		0.47μF/50V(NP)
C 614		CEA2R2M50LS2	C 303 304 305 306 307 308		CFHSQ222J50
C 617 618 619		CKSQYB473K50	C 309 310 311 312		CFHSP104J16
C 703 704		CFHSQ103J16	C 321 322		CEV100M16
C 707		CSZSR6R8M6R3	C 401		CKSQYB182K50
C 708			C 402		CKSQYB822K50
C 710 712		CECV470M6R3	C 403		CKSQYB333K50
C 713 715 717 718 719 720 751 872 953		CKSQYB473K50	C 404		CKSQYB471K50
C 716		CSZSR01M35	Display Unit		
C 721 722		CCSQCH150J50	C 405 of		
C 723 757		CCSQCH150J50	•Control P.C.Board		
C 724		CQEA104J63	•Driver P.C.Board		
C 725		CSZSR100M6R3			
C 726 727		CKSQYB473K50			
C 730 733		CCSQCH221J50			
C 734 735		CKSQYB473K50			
C 752 863		CEA101M10LL	Unit Number : CWM3455		
C 754 859 860		CEA100M16LS2	Unit Name : Display Unit		
C 755 865 957		CEA0R1M50LS2			
C 756 990		CKSQYB103K50	MISCELLANEOUS		
C 762 982 989 991		CEA100M16LS2	IC 1 2 3 4		HD61202TF
C 763		CEA220M16LL	IC 5		HD61203TF
C 764 861 862 871 986		CKSQYB103K50	IC 901		PD3235A
C 765		CEA220M6R3LS2	IC 902		PD3256A
C 766		CKSQYB102K50	IC 903		BX-1393
C 767		CKSQYB102K50	IC 904		S-80743AN-D7
C 853 854 855 856		CEWAR010M50	IC 907		TC4S81F
C 857 858		CEA330M10LL	IC 908		TC7S00F
C 878 879		CKSQYB471K50	IC 909		RC5532MD
C 951		CKSQYB473K50	Q 902		DTC144EU
C 959		CEKA331M10	D 901 902 903 904		
C 961		CEAS221M25	D 905 906 907 908		HSM123
C 966 968 970		CEA470M10LL	D 909 910 911 912		HSM123
C 972		CEAS102M16	D 915 916 917 918		HSM123
C 974 975		CEA220M6R3LS2	D 925 926 927 928		HSM123
C 977 0.1μF/5.5V		CCL1023	L 901		LCTA4R7K4532
			Inductor		
			L 902		Inductor
			L 903		Inductor
			TH 901		Thermistor
			X 901		Ceramic Resonator 8.00MHz
			S 901 902 903 904		Switch
					CSG1043



=====Circuit Symbol & No. Part Name=====		Part No.	=====Circuit Symbol & No. Part Name=====		Part No.
RESISTORS			HD 1	Head Unit	CXA4587
R 100 150		RS1/10S122J	IL 752	Lamp 14V 40mA	CEL1150
R 101 151		RS1/10S473J			
R 102 152		RS1/4S681J			
R 103 153		RS1/10S101J			
R 104 154		RN1/10SE303D			
R 105 161		RN1/10SE222D			
R 106 156		RS1/10S104J			
R 107 108 157 158		RN1/10SE103D			
R 109		RS1/10S474J			
R 110		RN1/10SE912D			
R 111		RN1/10SE153D			
R 112		RN1/10SE273D			
R 113		RS1/10S101J			
R 114 1001 1014		RS1/10S473J			
R 115		RS1/10S223J			
R 116 155		RN1/10SE362D			
R 117		RS1/10S563J			
R 118		RS1/10S563J			
R 119 122 124 162 165		RS1/10S473J			
R 120 121 123 163 164		RS1/10S223J			
R 159		RS1/10S223J			
R 160		RS1/10S222J			
R 1002		RS1/10S472J			
R 1003		RS1/4S681J			
R 1004		RS2P100JL			
R 1005 1010		RS1/8S473J			
R 1006		RS1/8S222J			
R 1009		RS1/10S103J			
R 1011		RS1/8S473J			
R 1015 1016		RS1/10S103J			
R 1017 1018		RS1/10S103J			
CAPACITORS					
C 100 102 105 107 39μF/25V		CCH1162			
C 150 152 155 157 39μF/25V		CCH1162			
C 101 104 108 109 113 151 154 158		CKSQYB102K50			
C 103 153		CCSQCH101J50			
C 110		CEHAS010M50			
C 111		CCSQCH221J50			
C 112		CKSQYB104K25			
C 114		CKSQYB222J50			
C 1001	3300μF/16V	CCH1037			
C 1002 1010		CKSYB473K16			
C 1003 1013 1015		CKSYB473K16			
C 1004 1005		CKSQYB103K50			
C 1008		CEAS221M10			
C 1007 1009 1011		CEA101M16LL			
C 1012		CEA470M25LL			
C 1014		CEA470M16LL			
C 1016 1017 1018		CKCYF473Z50			
C 1019		CEA3R3M50LL			

Unit Number:

Unit Name : Switch P.C. Board(D)

S 1	Switch(CST SET)	CSN-089
S 2 3	Switch(CST IN,70μS)	CSN1023
MR 1 2	Magnetic Resistive Device	DM-106B

## Miscellaneous Parts List

S 25	Switch(DOOR OPEN/CLOSE)	CSN-078
S 751 752	Switch(FLAP OPEN/CLOSE)	CSN1022
M 1 2	Motor Uint(HEAD,FF/REW)	CXA4577
M 3	Motor(HEAD)	CXM1084
M 751	Motor(FLAP)	CXM1085

● The RS-K1/UC and RS-K1/ES Parts those enumerated in the RS-K1/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.

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The RS-K1/EW Parts List is given on page 99.

• Audio Tuner Unit

Circuit Symbol & No.	RS-K1/EW	RS-K1/UC	RS-K1/ES
	Part No.	Part No.	Part No.
IC502	CWV1034	.....	.....
Q507	DTC124EK	.....	.....
Q516	2SC2712	.....	.....
Q517	DTC124EK	.....	.....
Q518	DTC144TK	.....	.....
D503	MA3047M	.....	.....
L503	LCYA2R2M3225	.....	.....
L506	LCYA4R7K3225	.....	.....
VR501	CCP1152	.....	.....
R540,541,542	RS1/10S102J	.....	.....
R543,547,548	RS1/10S102J	.....	.....
R545,551	RS1/10S104J	.....	.....
R546	RS1/10S472J	.....	.....
R549,550	RS1/10S102J	.....	.....
R552	RS1/10S103J	.....	.....
R553,570	RS1/10S473J	.....	.....
R555	RS1/10S222J	.....	.....
R556	RS1/8S151J	.....	.....
R557	RS1/10S102J	.....	.....
R572	.....	RS1/10S0R0J	RS1/10S0R0J
R637	.....	RS1/10S473J	.....
R638	RS1/10S473J	.....	RS1/10S473J
R639	RS1/10S473J	RS1/10S473J	.....
R640	.....	.....	RS1/10S473J
C512	CEAR47M50LS2	.....	.....
C516	CCSQCH101J50	.....	.....
C517	CEA4R7M35LS	.....	.....
C524	CKSQYB103K50	.....	.....
C527	CEA100M16LS2	.....	.....
C530	CSZSR22M35	.....	.....
FM/AM Unit	CWE1321	CWE1323	CWE1320

• FM/AM Unit

Circuit Symbol & No.	RS-K1/EW	RS-K1/UC	RS-K1/ES
	Part No.	Part No.	Part No.
Q51	DTC124EU	.....	.....
Q124	.....	.....	2SA1586
Q125	.....	.....	2SC4116
Q132	DTC124EU	DTC124EU	.....
CF52,53	CTF1193	CTF1247	CTF1247
L2	LCTBR12K2125	.....	.....
R11	.....	RS1/10S0R0J	RS1/10S0R0J
R60	RS1/16S473J	.....	.....
R101	RS1/10S331J	RS1/10S391J	RS1/10S391J
R120	.....	.....	RS1/16S684J
R129	RS1/16S184J	RS1/16S184J	RS1/16S104J
R132	RS1/16S0R0J	RS1/16S0R0J	.....
R133	.....	.....	RS1/16S333J
R134,138	.....	.....	RS1/16S0R0J
R136	.....	.....	RS1/16S563J
R137	RS1/16S223J	RS1/16S223J	.....
R139	.....	.....	RS1/16S472J
R140	.....	.....	RS1/16S103J
R141	.....	.....	RS1/16S334J
R142	RS1/16S473J	RS1/16S473J	RS1/16S0R0J
R151,152	RS1/16S332J	RS1/16S222J	RS1/16S222J
C101	CKSRYB682K50	CKSRYB332K50	CKSRYB332K50
C103	CKSQYB392K50	CKSQYB272K50	CKSQYB272K50
C112	CKSYB183K50	CKSYB333K25	CKSYB683K16
C125	CEV100M16	CEV100M16	.....
C126	.....	.....	CEV2R2M50
C127	CEV4R7M35	CEV4R7M35	.....
C132	CSZSR47M20	CSZSR47M20	.....
C151,152	CKSQYB183K25	CKSQYB393K25	CKSQYB393K25

• Remote Control Assy

Circuit Symbol & No.	RS-K1/EW	RS-K1/ES
	Part No.	RS-K1/UC
D4	MA110-1A	.....

## 13. CIRCUIT DESCRIPTION

### 13.1 A/D CONVERTER SECTION

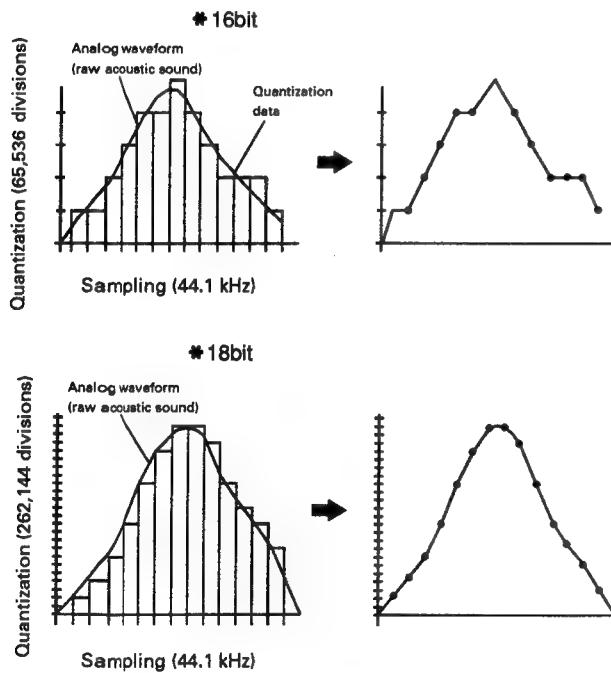
- As concerns the 18-bit A/D converter (IC701: AK5369-VK)

The difference in performance when compared with the formerly used 16-bit A/D converter is shown below:

$$\begin{array}{rcl} \text{16-bit A/D converter} & \frac{\text{FSR}}{2^{16}} & = \frac{\text{FSR}}{65536} \\ \\ \text{18-bit A/D converter} & \frac{\text{FSR}}{2^{18}} & = \frac{\text{FSR}}{262144} \end{array}$$

FSR (Full Scale Range) = Input voltage range

The above shows that the quantization for the 18-bit A/D converter is finer than that for the 16-bit A/D converter by about four times.



As indicated by the graphs shown above, the 18-bit A/D converter can produce sounds more similar to raw acoustic sound.

By data comparison, THD ( $V_{in} = \pm FS$ ,  $f = 1 \text{ kHz}$ ) for the 16-bit converter is 0.002% and THD for the 18-bit converter is 0.0015%. This also indicates that sounds gained by the 18-bit A/D converter is more similar to raw acoustic sound than those obtained using the 16-bit converter.

THD = Total Harmonic Distortion: ratio of effective values of signals to effective values of harmonic waves.

- AK5369-VK

AK5369-VK is a 2-channel A/D converter using the 4-degree  $\Delta \Sigma$  method. It has two built-in  $\Delta \Sigma$ -converters and allows simultaneous sampling of analog input signals at a sampling rate of 64 times (64 fs). Over-sampled data are decimated to 18-bit data of fs by a digital filter.

### 13.2 OPERATIONAL AMPLIFIER WITH A SWITCH (IC451, 452: BA3129F)

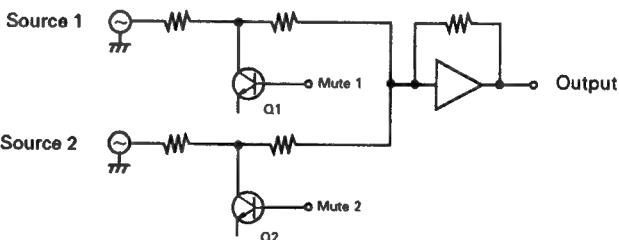
- Formerly used method

In the former type, switching of each source signal was done by using one of the following methods:

1. A resistance mixing method is applied by making use of operational amplifiers. Signal lines not being selected are muted by means of transistors.
2. Level setting for each signal line is done by using a discrete operational amplifier and then switching is done by an analog switch.

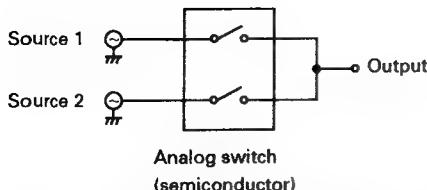
- Drawbacks of using the former methods

1. Signal lines not being selected must be muted. In most cases, muting means is provided by transistors. These transistors may cause distortion to grow.



2. The analog switch used for signal switching is a non-linear element. The distortion factor of this switch is poor and thus causes distortion to grow in a signal line.

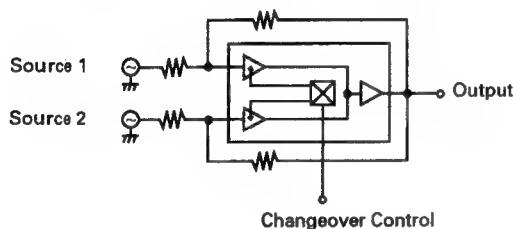
(Reference: THD for the analog switch (TC4066) is 0.1%.)



### ● Advantages of the OPERATIONAL AMPLIFIER with a switch that is just adapted

1. Because a switch is built in the amplifier, it is unnecessary to use a transistor for muting. This can prevent distortion from growing. Because a single operational amplifier is used for each source, level setting for each source can be done without affecting the sound quality.
2. The entire THD in the section of an operational amplifier plus a switch is 0.0015%, which is significantly better.

Also, the use of one chip IC per 1 channel (the former amp uses one chip IC per 2 channels) allows the power supply and ground to be separated per channel. This results in improvement in separation.



#### Operational amplifier with a switch for audio

Because the switch is contained in the NF loop, deterioration of the distortion factor is eliminated.

## 13.3 $\pm$ POWER SUPPLIES

### ● Formerly used power supply

A single power supply was used and setting of a supply voltage can be performed in the range of normally 0 to 8 V when used in a car. Thus, a dynamic range was determined within the above range. There was a limit in improvement in S/N.

The reference voltage that took the role of a temporary ground was needed. Signals were amplified relative to this reference voltage, and thus the reference voltage circuit had a large effect on the sound quality.

In addition, because signal lines coupling capacitors were needed, their effects were also present.

### ● Power supply that is just adapted

The use of both the plus and minus power supplies ( $\pm 8$  V) increases, in principle, a dynamic range by 6 dB as compared with the former power supply, which results in improvement in S/N.

Moreover, because the reference voltage is unnecessary, signals are amplified truly relative to ground, and thus no deterioration occurs in the sound quality.

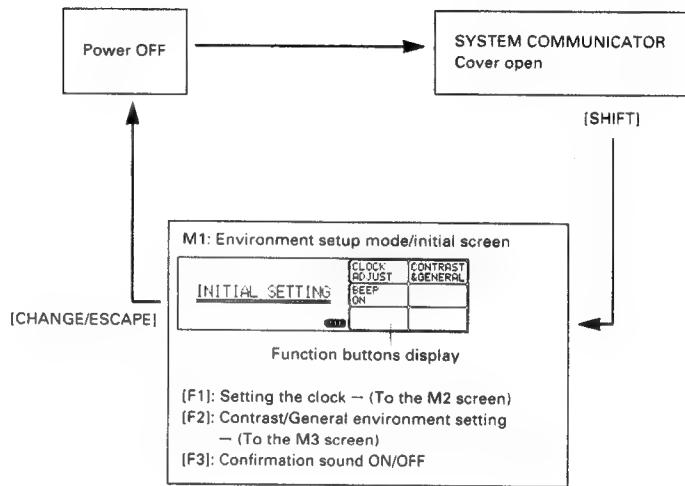
In addition, there is a possibility of deleting coupling capacitors, which may provide higher sound quality. All signal circuits in this unit are operated by the plus and minus power supplies, and there is no capacitors in the section from the head to EQ amp and in the section from MIX to A/D converter.

# ODR System — Reference Manual —

- > This Reference Manual gives a simple explanation of the functions of the ODR System (mainly audio adjustment functions) by using charts of the display.
- > The Reference Manual explains the operations using the SYSTEM COMMUNICATOR.
- > The buttons inside the cover cannot be used, even if the cover is open, when the SYSTEM COMMUNICATOR is being used as a wireless remote control unit. To use these buttons, install the SYSTEM COMMUNICATOR to the base and use it as a wired system.
- > The names of the buttons to be used in operations are indicated inside parentheses [ ]. (For example, Function button/3 is referred to as [F3].) For details on the names of buttons, please see "How to use this manual" (page iv) of the Owner's Manual.
- > Refer to the Owner's Manual for more details of the functions outlined in this manual.

## Environment setup mode

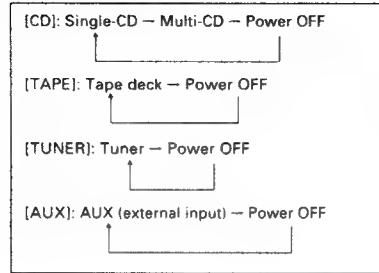
- > Use this mode to set the environment under which the ODR System is to be used.



- > [◀▶], [ +/- ] and [F] buttons to specify respective environment settings.
- > Operating the main unit allows the system to be changed to the environment setup mode even while the power is ON. (Hold down the SOURCE button of the main unit for at least 2 seconds after opening the cover of the SYSTEM COMMUNICATOR.)

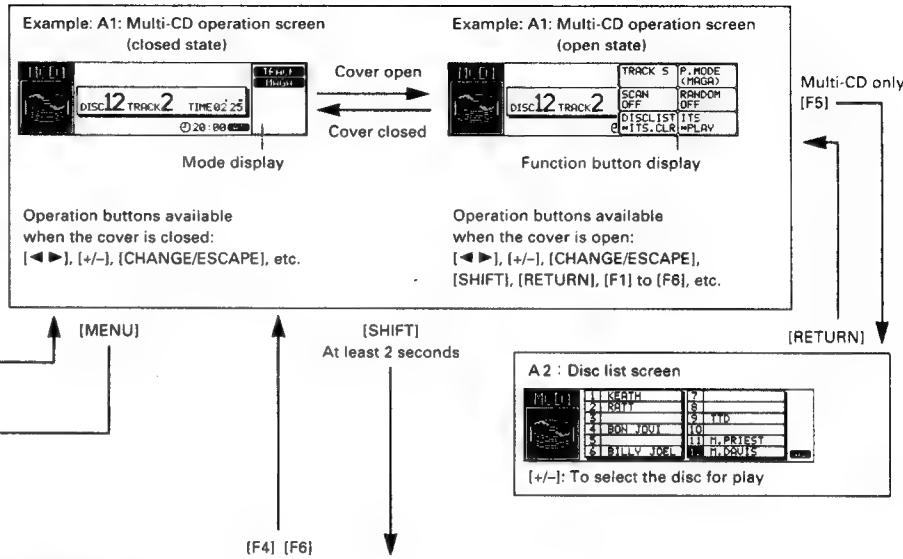
## Common/source operations

### Switching the source

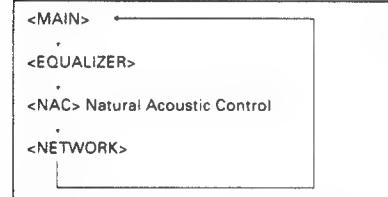


When listening the source

### Sound source operations screens

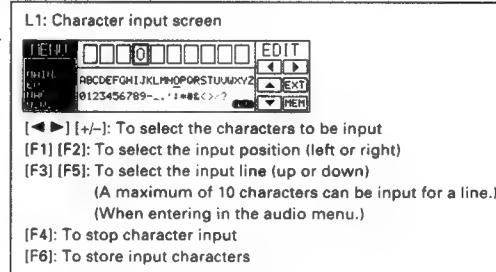


### Switching the audio menu

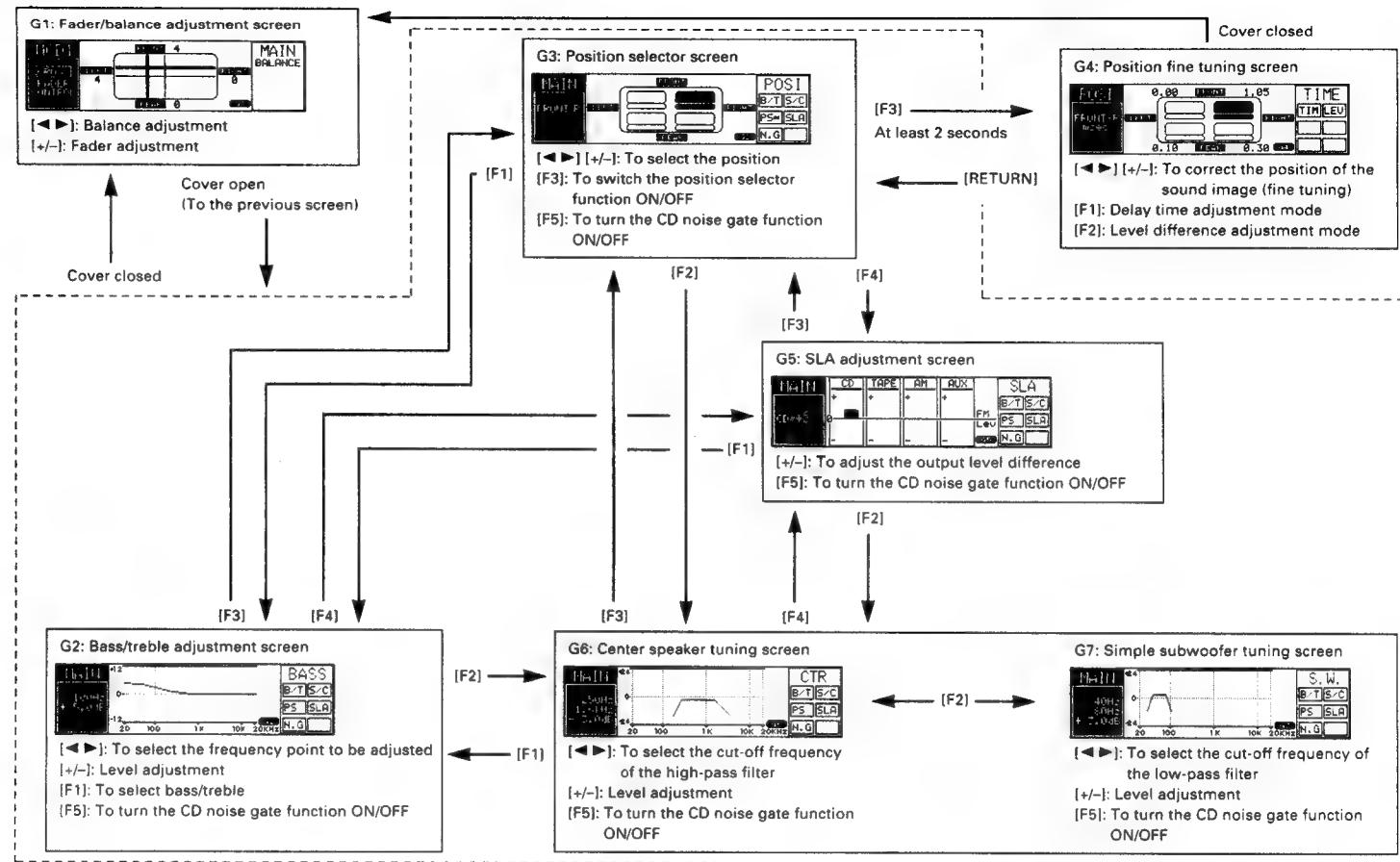


> See the explanations for the audio menu for more details.

[SHIFT] At least 2 seconds



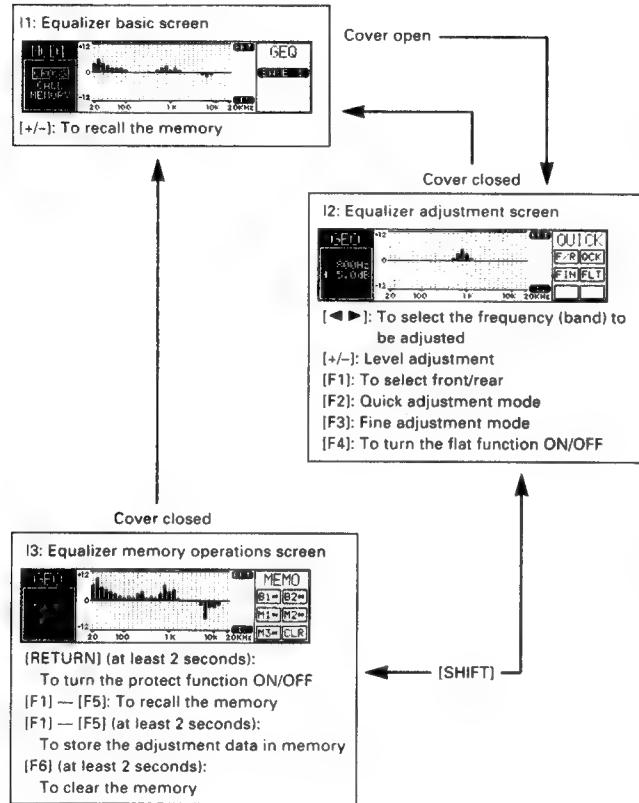
## Main menu <MAIN>



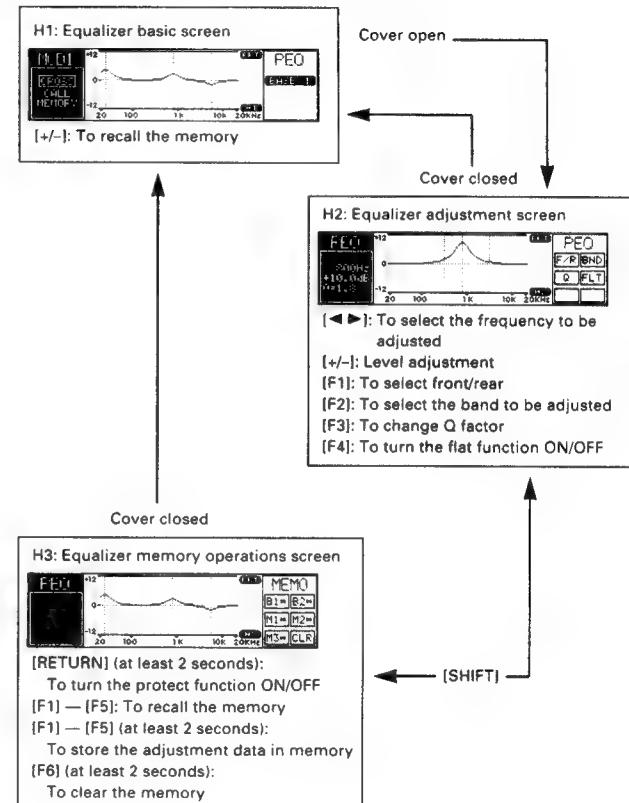
## Equalizer menu <EQUALIZER>

### Graphic equalizer

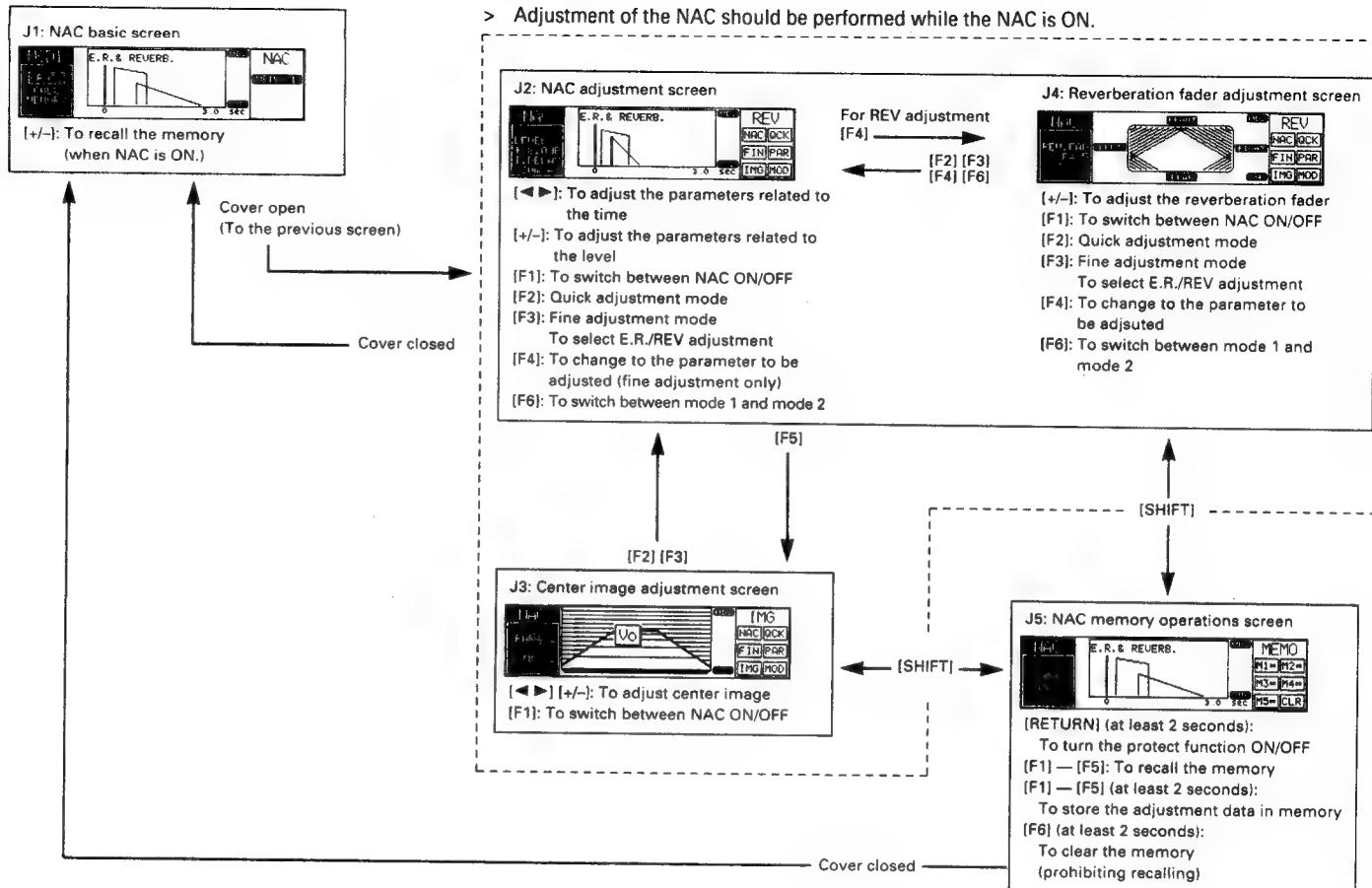
- > The illustrations below show examples of the 31 band graphic equalizer. The same operations can be performed with the 16 band graphic equalizer.



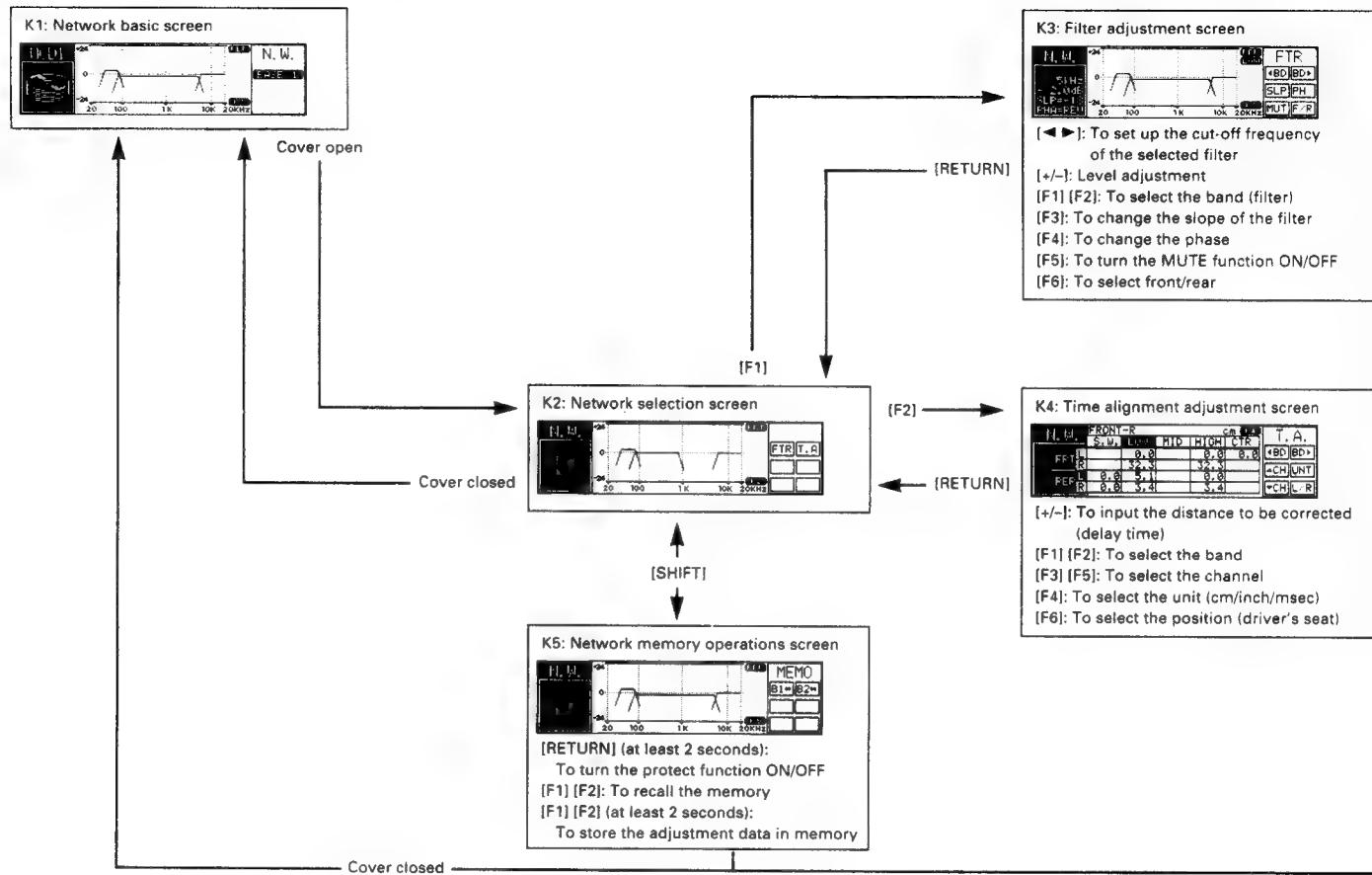
### Parametric equalizer



## Natural acoustic control menu <NAC>



## Network menu <NETWORK>



## Connecting the units



### CAUTION

#### To prevent a short circuit

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Do not drill a hole into the engine compartment for an orange lead to the vehicle battery. Vibration may eventually wear through the insulation round the lead, resulting in a short circuit through the vehicle body.

- Do not route wires where they will get hot, for example where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short circuit through the vehicle body.
- Make sure that wires will not foul moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.



### CAUTION

#### To avoid accidents

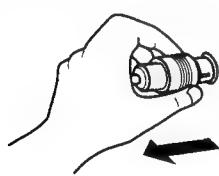
- Do not shorten any leads. If you do, the protection circuit may fail to work when it should.

- Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.

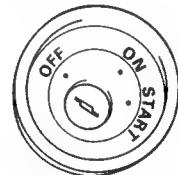


#### To prevent damage

- Do not use the Digital Fiber Optic Cable CD-D60 and CD-D15, when using more than four optical cables in the entire ODR System. Otherwise no sound may be output.
- When disconnecting a connector, pull holding the connector itself. Do not pull the lead, as it may come away from the connector.



- When the unit is mounted in a vehicle whose ignition switch does not have the ACC (accessory) position as shown in Fig. 47, be sure to connect the red lead of the unit to the terminal controlled by the ignition switch ON/OFF position. If you do not, the vehicle battery may go flat when you leave your vehicle for several hours.

Fig.46  
ACC positionFig.47  
No ACC position

- Do not connect the red lead to power source terminals to which power is continuously supplied. If the lead is connected, the car battery may be overloaded.



#### To prevent noise

- Install the antenna cord as far as possible from the IP-BUS cable, speaker lead and power source lead.

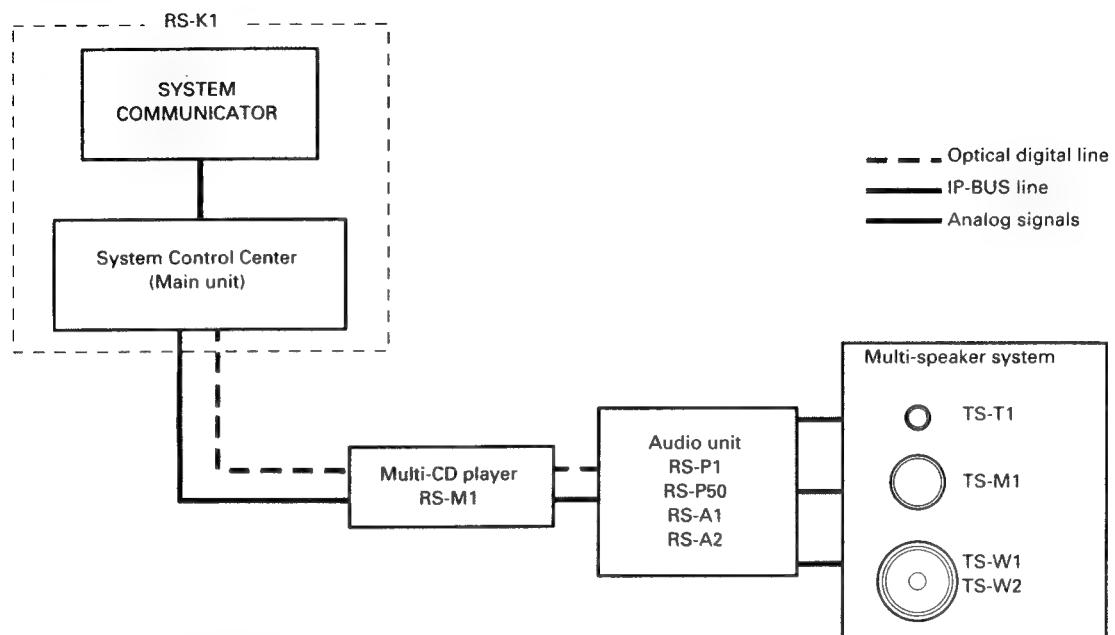
#### See the manual for each component in the system

- Connect the components correctly by referring to the manual for each component.

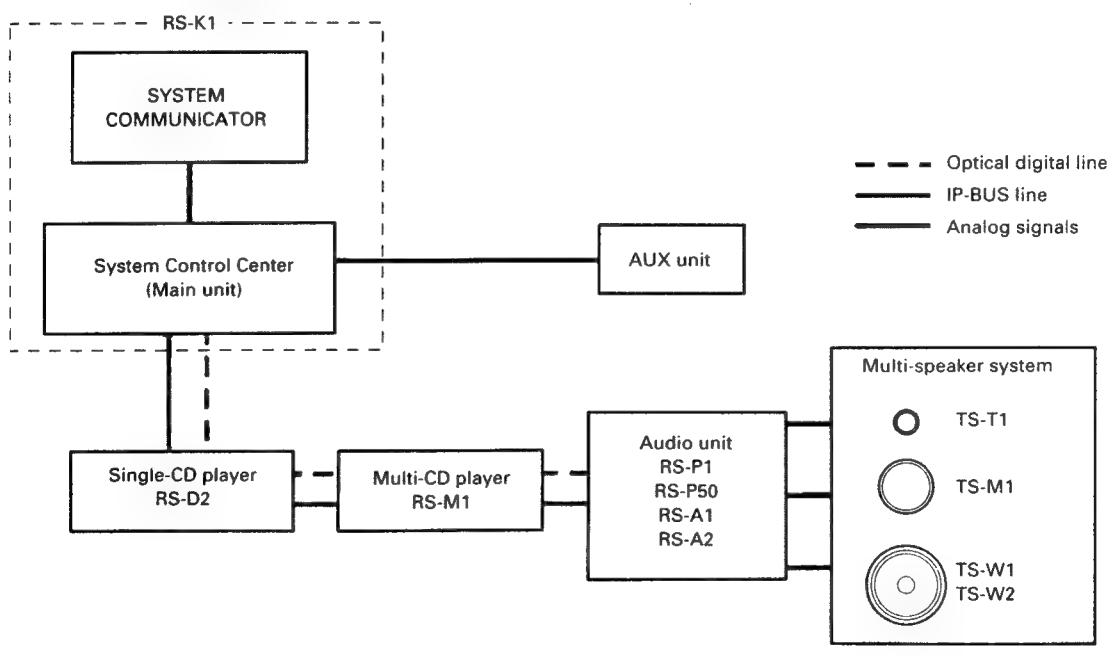
## System block chart (outline)

The ODR system comprises the following units:

### Example 1:



### Example 2: Example 1 + AUX unit + single-CD player [RS-D2]



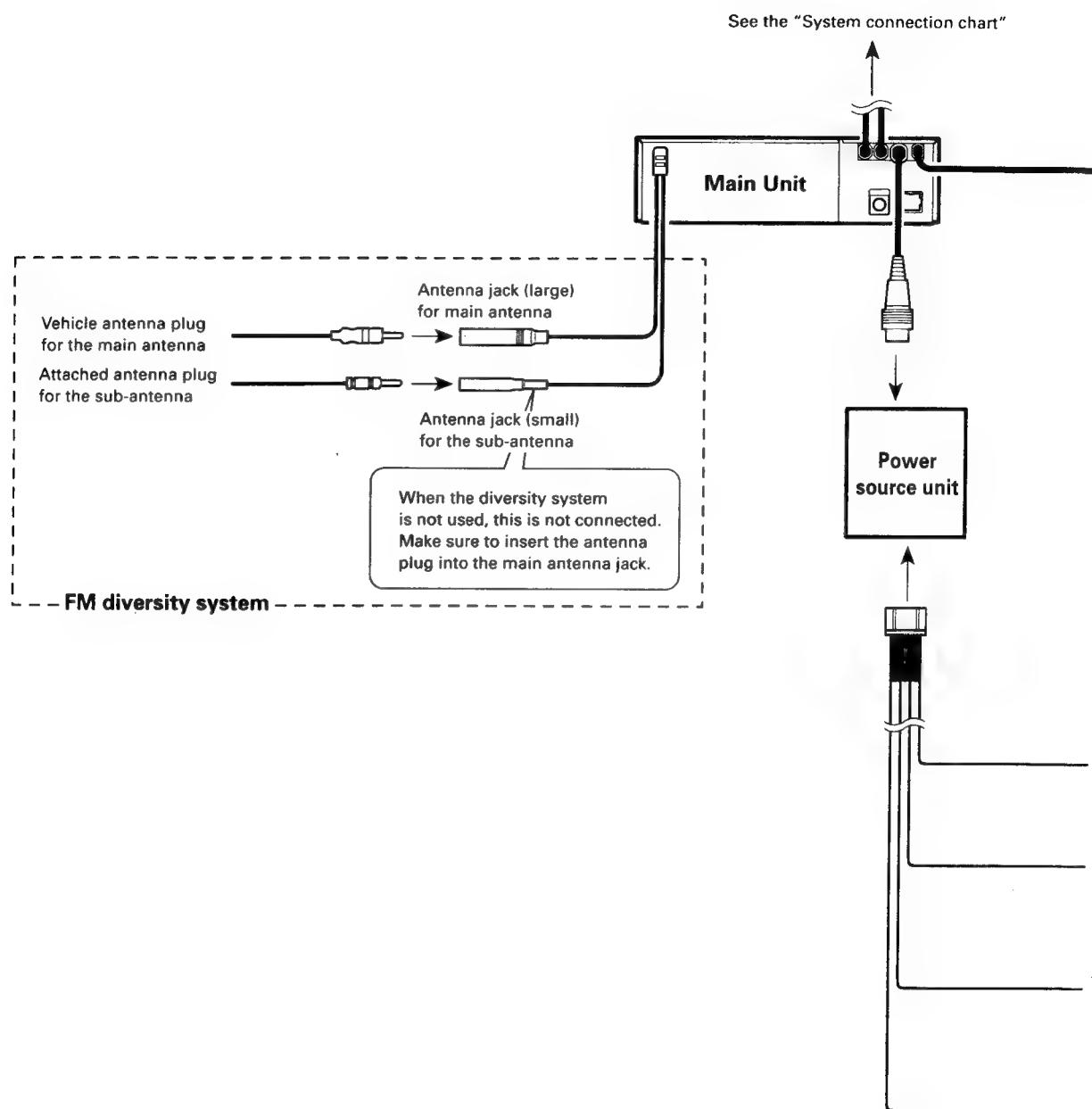
#### Connection of single-CD player RS-D2

> See the RS-D2 manual.

#### Connection of AUX unit

> When external units (video or DAT with RCA output) are connected, the RCA to IP-BUS interconnector CD-RB10, available as an optional extra, is needed to connect to the IP-BUS line.

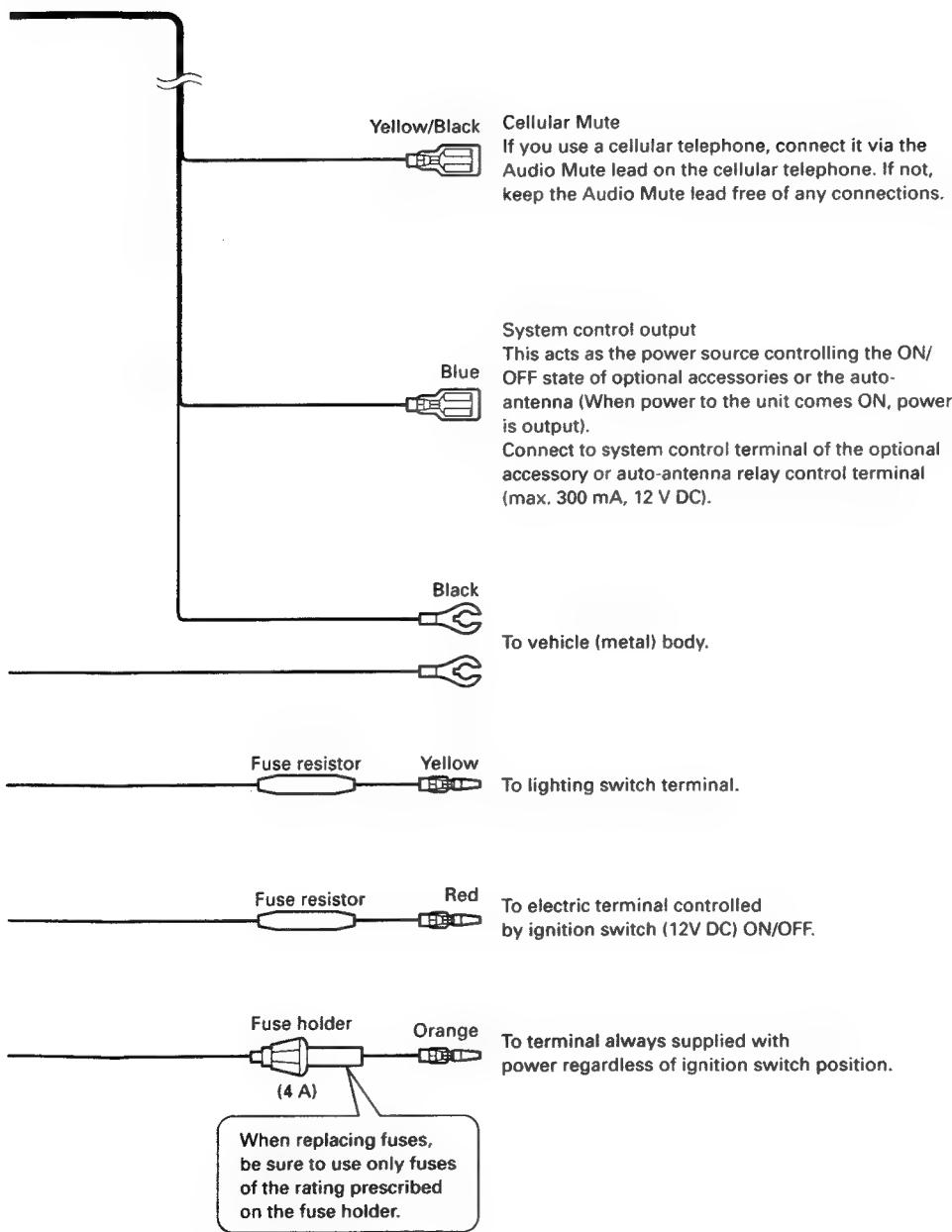
## Connection of power source lead/antenna lead



### The FM diversity system

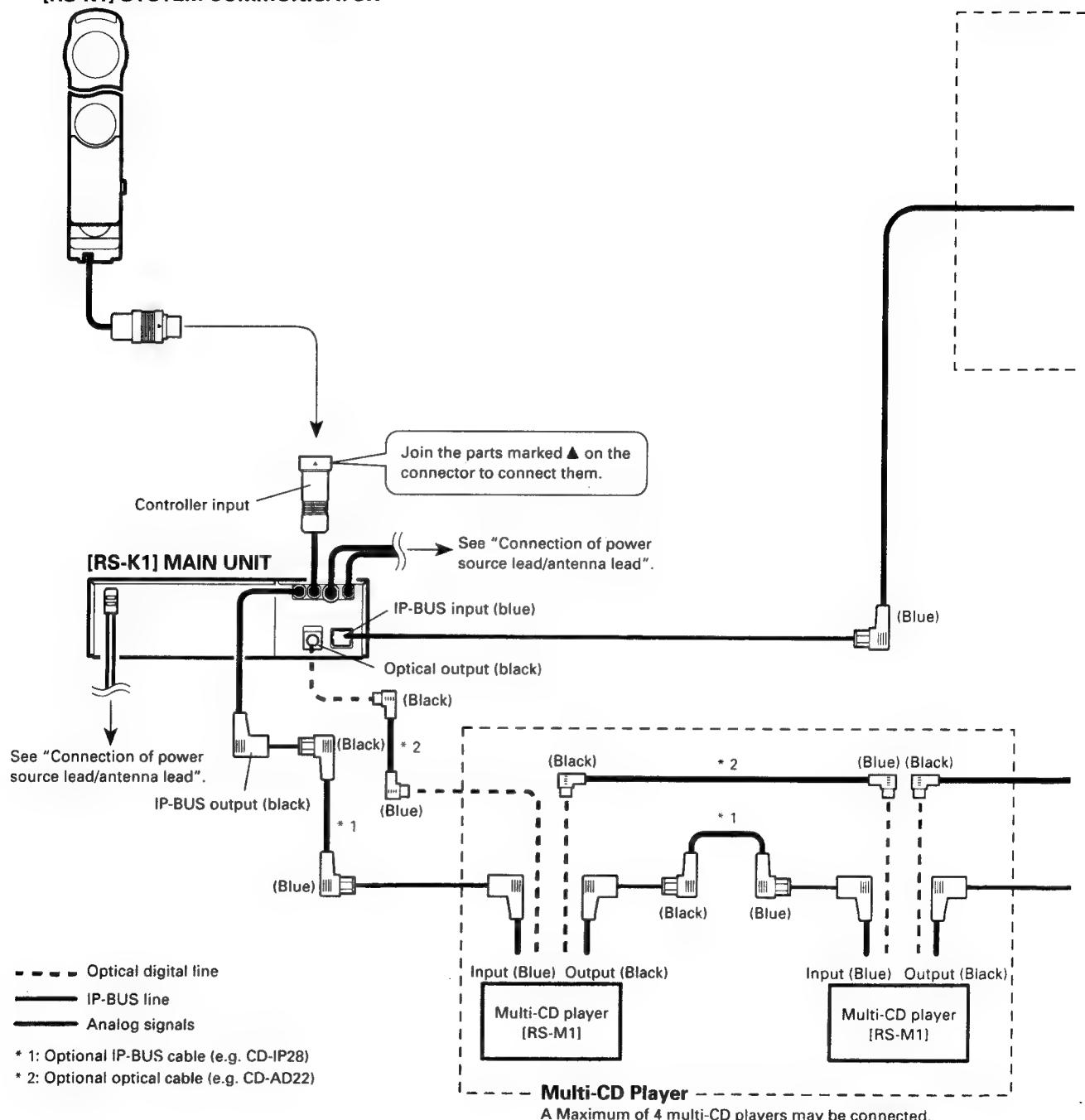
> The FM diversity system receives FM broadcasts using two antennas. When reception through the main antenna is poor, the system automatically switches to the sub-antenna.

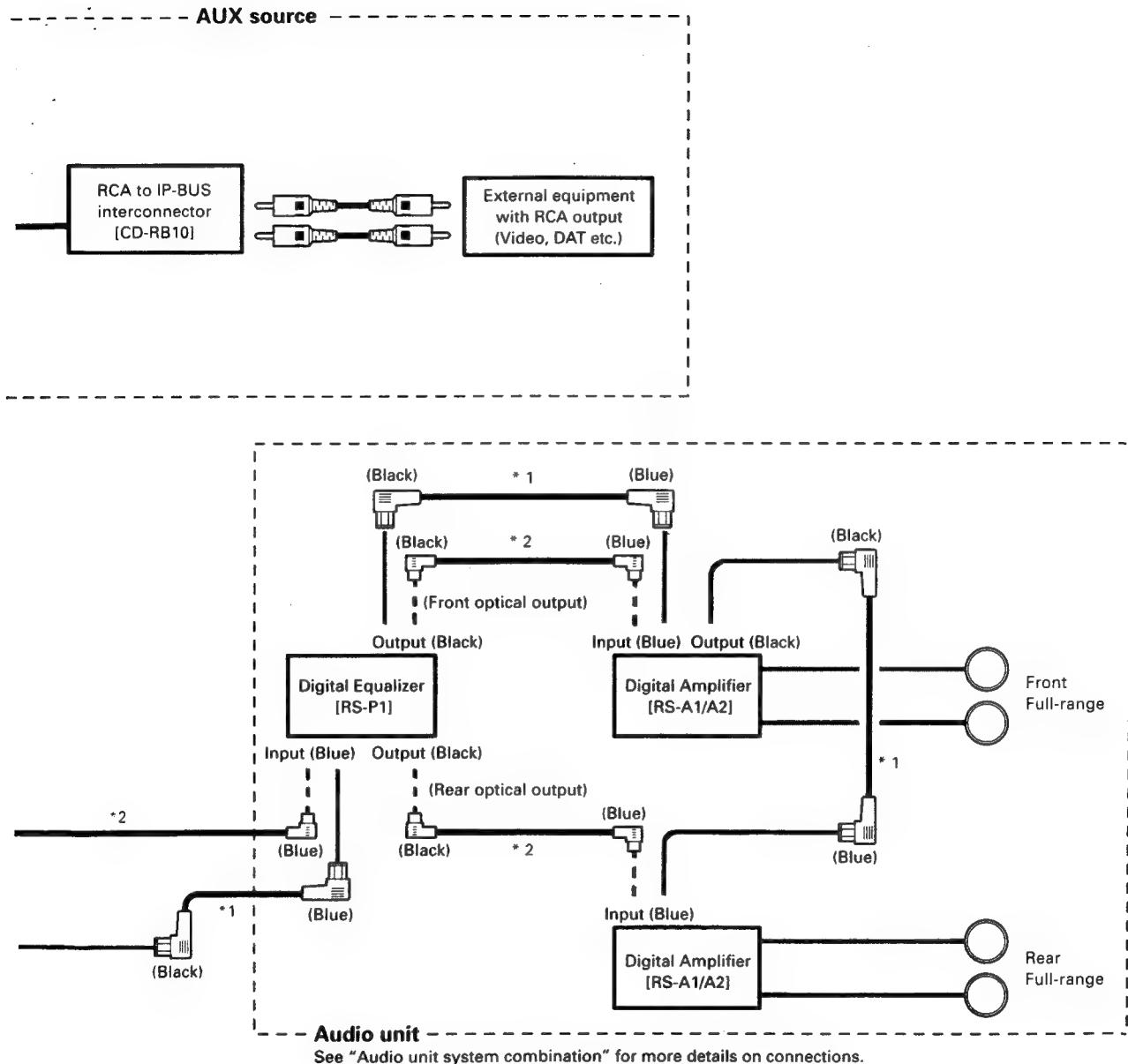
> This unit responds to the FM diversity system. When the attached FM sub-antenna is used, switch ON the FM diversity setup.



## System connection chart

### [RS-K1] SYSTEM COMMUNICATOR





#### Connecting the IP-BUS and optical digital line

- > The IP-BUS and optical digital line are connected by a cable, available as an optional extra, linking the output (black) terminal of the component connected in front and the input (blue) terminal of the component connected at the rear. This is essentially a series connection. (The optical digital line is separated into front and rear signals at RS-P1.)
- > Skip any product that is not being installed, and connect to the next one.

- > To prevent incorrect connection, the input side of the IP-BUS and optical digital line connector is colored in blue, and the output side in black. Connect the connectors of the same colors correctly. (The portions to be connected of the IP-BUS connector are colored.)

## Audio unit system combination

### ❖ Points when setting up the ODR System

#### Address setup

The ODR System can connect more than one audio unit, such as Digital Equalizer, Digital Amplifier. Therefore, the address for identification (numbers 1 — 8) must be set up for the audio unit. Do this as follows:

- Set up addresses in such a manner that addresses will not overlap within the audio units.
- Memory control of the audio setup such as equalizer and network is conducted by the unit set to Address 1. Be sure to set the audio unit which is connected first to Address 1.
- The RS-P1 is fixed to Address 1. When there is an RS-P1 in the system, use Addresses 2 — 8 (randomly) for other audio units.
- When there is an RS-P50 but no RS-P1 in the system, set an RS-P50 to Address 1.

> Only one RS-P1 can be connected to the ODR System.  
Two RS-P50s can be connected to the ODR System.

#### Other setup

To set up the RS-P50 mode, as well as the RS-A1 and RS-A2 modes and faders, see the manuals for these products and carry out the setup depending on the combination of units in the system. Unless the setup for each component is carried out correctly, the ODR system will not function correctly.

### ❖ For better sound quality: restrictions on system configurations

#### Connecting digital amplifiers RS-A1 and RS-A2

- The RS-A1 is a sound-quality-oriented "Pure Class A" amplifier. Therefore, the power consumption will be approximately 5 A at low volume. To prevent overload to the battery, do not connect more than two RS-A1 units to the ODR system.
- To ensure better sound quality, it is recommended that the digital amplifier is connected in the following sequence: high, mid, low and subwoofer.

#### Using the center speaker

- Connect the center speaker to the Digital Equalizer's center speaker output assigned Address 1. No sound will be output if the speaker is connected to the center speaker output of the Digital Equalizer assigned either Address 2 or Address 3.

#### Using the subwoofer

- Connect the subwoofer to the front output.
- > The NAC features may modify low sound signals from the rear output in order to implement the user's adjustments of sound field mode, position selector and so on. For unmodified reproduction of low sounds, input front signals to the subwoofer.
- When the subwoofer is connected to an RS-P50 in NAC mode, it is recommended to set to the NAC HPF (NAC high pass filter mode).
- > When NAC HPF mode is set, the 100 Hz high pass filter affects only output from the front and rear. It reduces the effects on the front and rear amplifiers and speakers of the low sound signals from the subwoofer, and thus delivers a higher quality sound.

### Using full-range speakers

- Network THRU mode of digital amplifiers RS-A1 and RS-A2 cannot be set up in the following instances.
  - > If either RS-P1 or RS-P50 is connected to the system.
  - > If other digital amplifiers in the audio system are connected to the network filter mode (other than THRU mode).
- When using speakers connected at full range in the system configurations specified above, set the digital amp to LOW (low-range) mode and adjust the filter characteristics using the network menu of the main unit.
- > If the speakers are normally used at full range, the network's filter features are not required. However, to obtain the highest quality sound from the center speaker and subwoofer, the filter functions of the network are needed. Therefore, if a center speaker or subwoofer is incorporated in the system, the digital amplifier cannot be set to the THRU mode, which bypasses the filter functions.
- When using the speaker at full range with RS-P50 set up in network mode, switch to LOW output and adjust the filter characteristics.
- > The frequency band reproduced in LOW mode (LOW output) can be varied from 25 Hz to 10 kHz by adjusting the filter cutoff frequency. Additionally, adjusting the slope (gradient of attenuation of the filter characteristics) allows the filter to be set to PASS and enables the speaker to be used at full range.

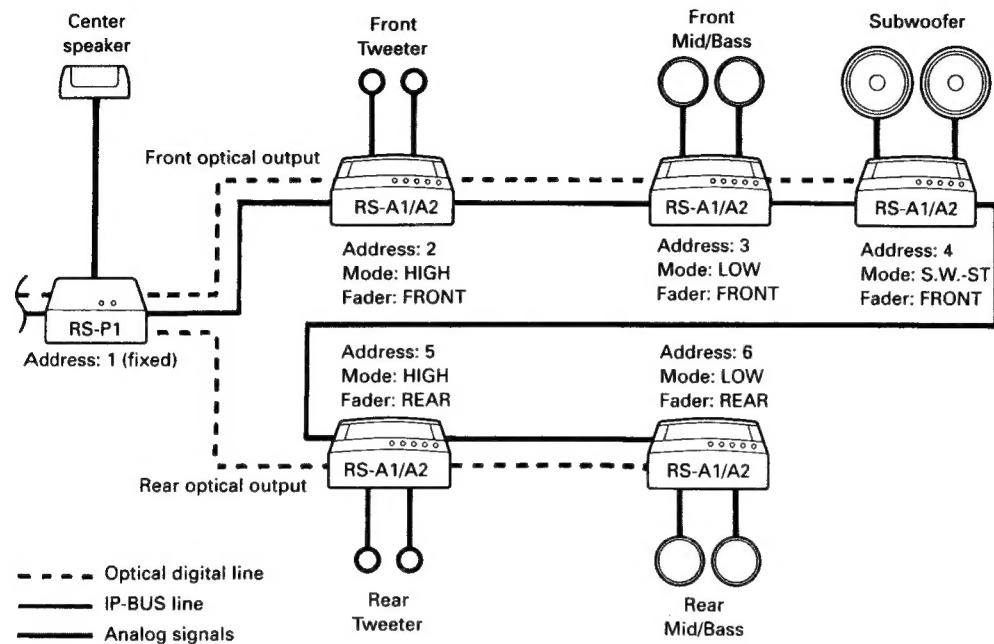
### Using RS-P50 in NAC mode

- When another audio unit is connected to the optical output of an RS-P50 set up in NAC mode, the functions governing the timing of audio adjusting become restricted.
- > As RS-P50 enables connection of an analog amplifier, its specifications are somewhat different from those of fully digital equipment. Therefore, when RCA output (analog signals) and optical output (digital signals) of an RS-P50 set up in NAC mode are used simultaneously, there will be restrictions on the signal delay adjustments under the time alignment and position fine adjustment functions.

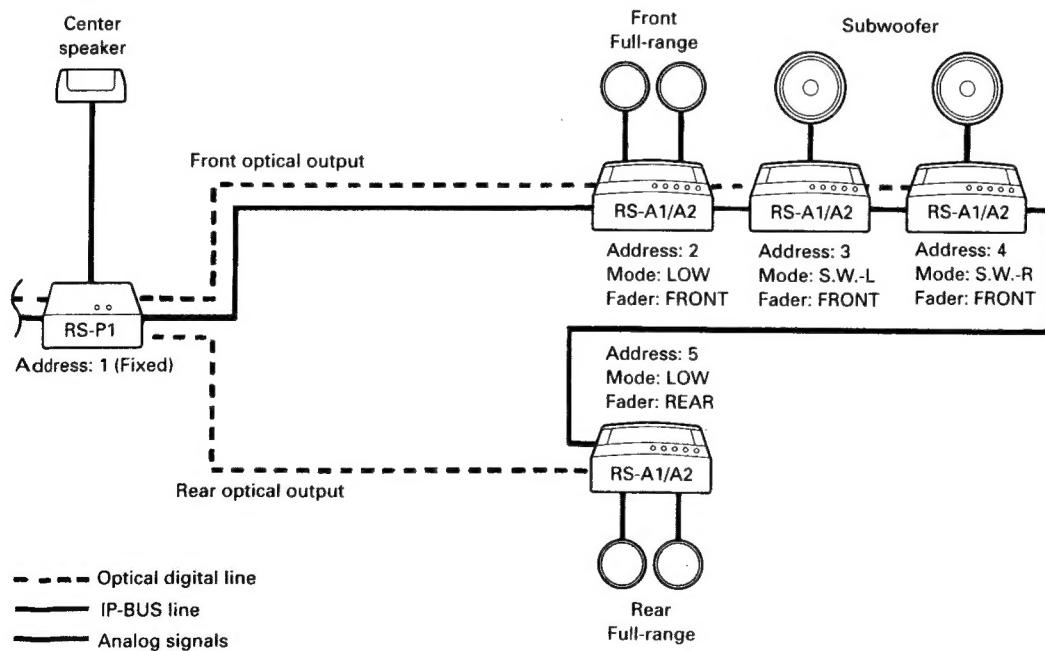
## Examples of system configurations

### ❖ NAC + 31-Band graphic equalizer [RS-P1]

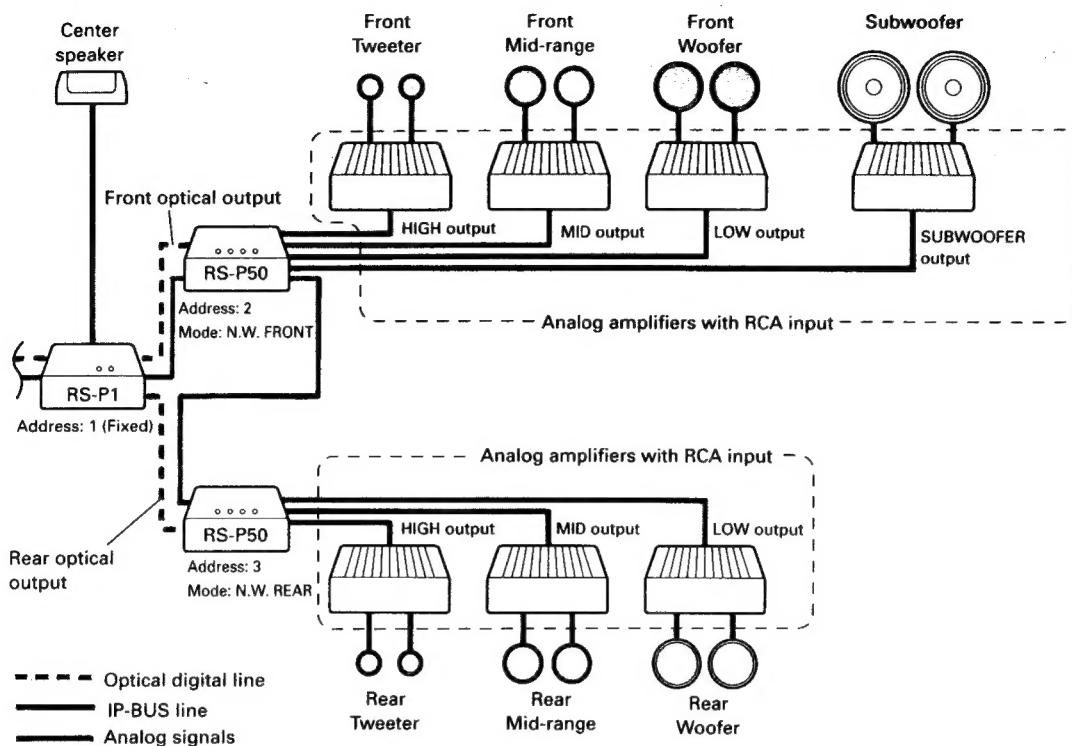
#### Example 1: Digital multi-amplifier system



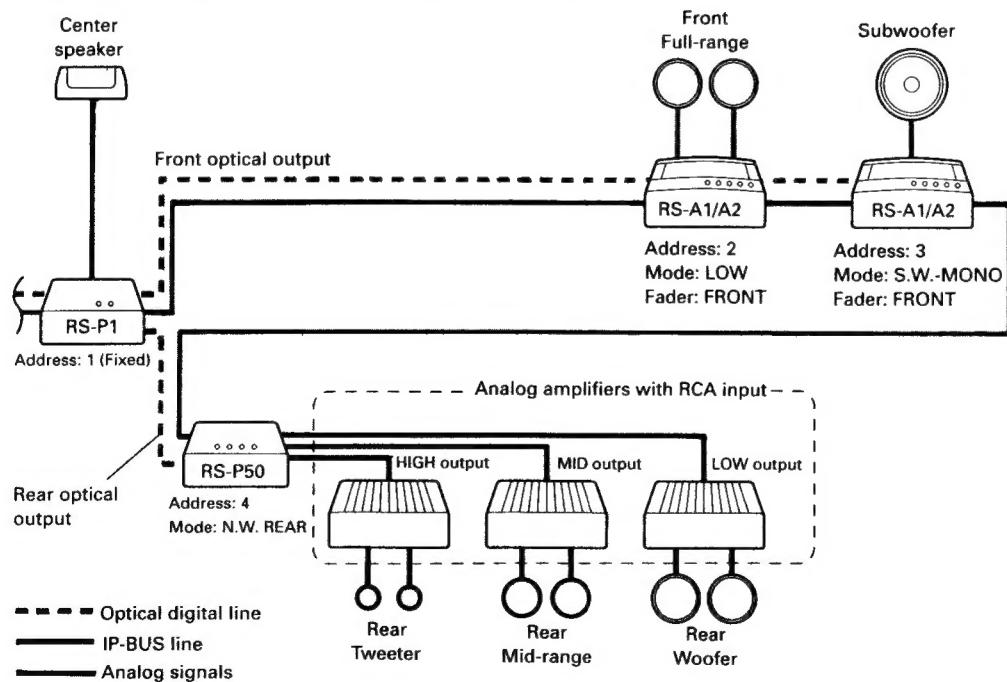
#### Example 2: Digital amplifier system



### Example 3: Analog multi-amplifier system

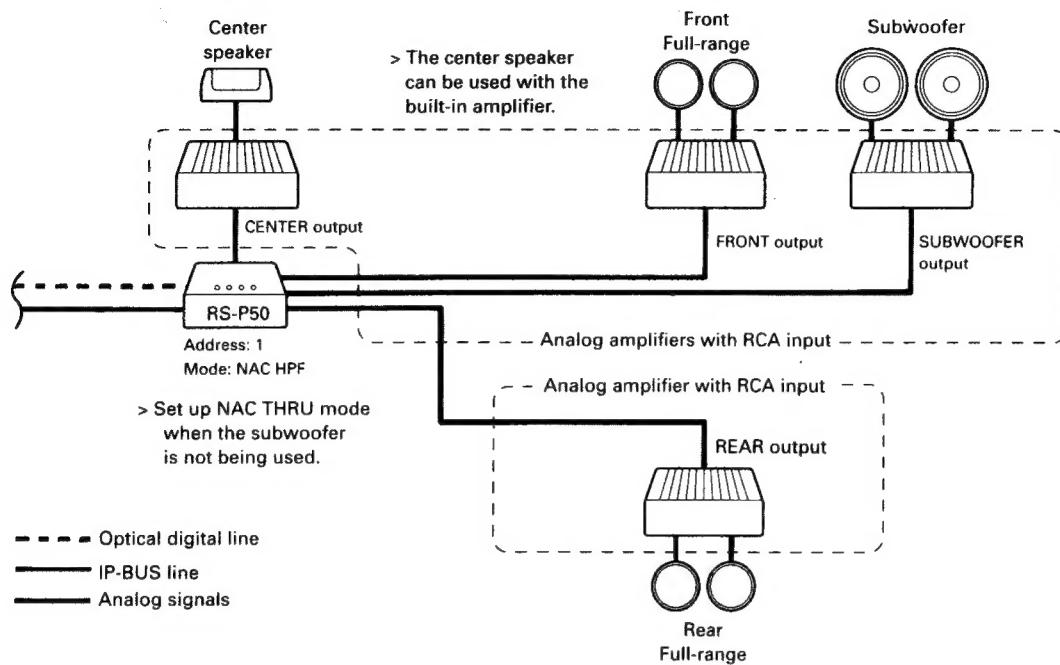


### Example 4: Digital + analog multi-amplifier system



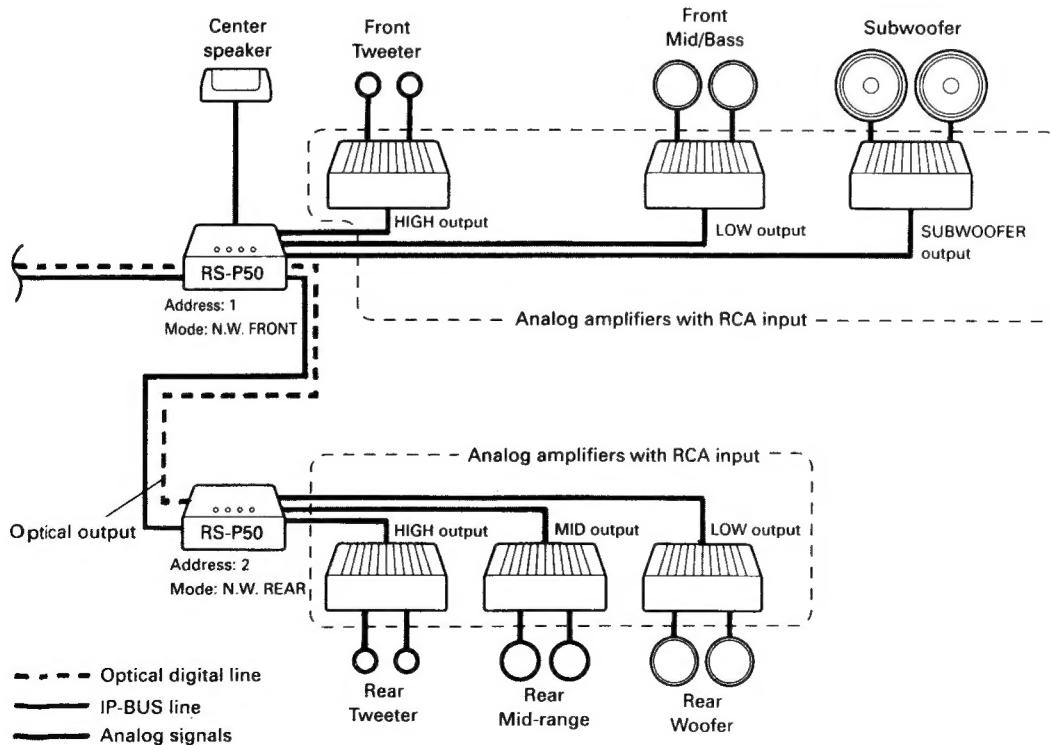
## ❖ NAC + 16-Band graphic equalizer [RS-P50]

### Example 5: Analog amplifier system



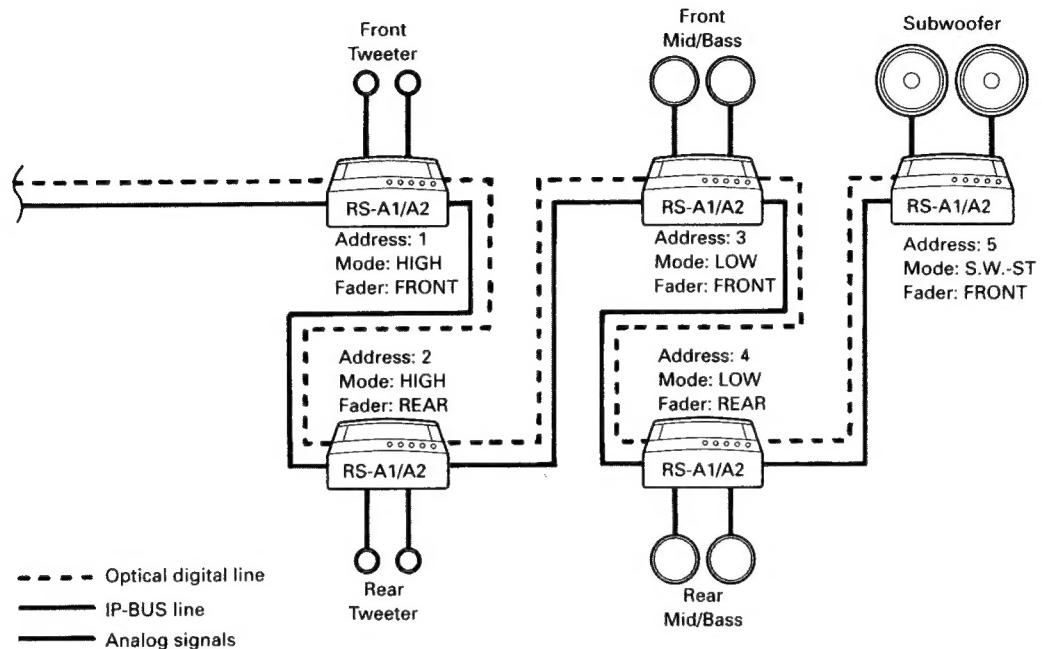
## ❖ 16-Band graphic equalizer [RS-P50]

### Example 6: Analog multi-amplifier system



### ❖ 3-Band parametric equalizer [RS-A1] [RS-A2]

#### Example 7: Digital multi-amplifier system



#### Example 8: Digital amplifier system

